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NOVEMBER

• 1948

FRUIT GROWER



For a FULL-TRACTION BITE.... *It's*

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LOW PRESSURE*

CHAMPION GROUND GRIPS

THE TIRES THAT -

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No tractor tire can pull unless it cleans. Firestone Champions OUTpull because they OUTclean. The *full-traction tread bars* flare outward like the moldboard of a plow and channel the soil out as the tire rotates and flexes. There are no trash-catching "bar-stubs."

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The real test of a tractor tire is how it pulls when the going is tough. You can depend on Firestone Champions to OUTpull because their traction bars are built higher for a deeper bite, longer for a bigger bite, Triple-Braced for a stronger bite, and connected at the center for a *full-traction bite* — all-the-way-across-the-tread.

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Firestone Champions OUTlast because their Triple-Braced bars cannot wobble and wear, cannot punch their way through the cord body like unbraced bars. The higher, longer, stronger bars of the Champion ride smoother, last longer. It's easy to see why Champions continue to give *full-traction tread life* long after other tires have worn smooth.

*** RUNS ON ONLY 12 LBS. PRESSURE**



For a tire to give full traction, it needs not only a full tread, but also a tread that is in full contact with the ground. By maintaining air pressure at twelve pounds, Firestone lets the whole tread come down to earth. The Champion can run safely on such low air pressure because its stronger tire body makes overinflation for sidewall support unnecessary. You get surer footing, smoother going, longer *full-traction tread life*.

*Listen to the Voice of Firestone
every Monday evening over NBC*

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THE ONLY TIRE MADE THAT
TAKES A FULL-TRACTION BITE
ALL THE WAY ACROSS THE TREAD

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Now You Get Greater Coverage at Lower Cost on All Spraying Jobs



**FOR QUICK
DRIVE-THROUGH
with CONTROLLED
APPLICATION**



**FOR CAREFUL
CLOSE-UP
HAND WORK**

NEW *IRON AGE* SPRAY HEAD Gives You 2-Sprayers-in-1

PROFIT-MINDED orchard and grove operators know now more than ever why it pays to spray the Iron Age way.

For the amazing new Farquhar Iron Age automatic - oscillating Spray Head attachment makes all Iron Age Sprayers *universal* . . . actually gives the grower *two-sprayers-in-one*.

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ough coverage. The Spray Head operates up and down 50 times per minute, stroke is adjustable 45° to 90° of travel. *Manual control* permits directing spray from either side of machine for the *approach* and *following* of trees.

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By detaching the Spray Head, growers have a conventional Iron Age Sprayer ready to go to work with guns and brooms for careful, close-up spraying required on many jobs. Either way, you are ahead with this *two-in-one* Iron Age Sprayer—because the famous Iron Age Pump delivers the constant high pressures needed for maximum coverage at lowest cost. It's built to "stand the gaff" under

toughest operating conditions.

Before you buy any sprayer, find out how this amazing Iron Age *two-in-one* machine can give you more coverage, more speed, and cut your spraying costs lower than ever before. Find out now which Iron Age orchard or grove model can best fit your particular spraying requirements.

Ask your Iron Age Dealer for complete details, or send for FREE information to:

A. B. FARQUHAR COMPANY, Farm Equipment Division
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In the important task of producing and delivering food to feed America you'll find these farm truck leaders of the nation first on the job. And that's because Chevrolet Advance-Design heavy-duty trucks *outsell* and *outserve* all other makes! It's because Chevrolet heavy-duty trucks alone offer this extra measure of value—outstanding quality together with 3-WAY THRIFT—low operating costs, low upkeep costs and the *lowest list prices in the entire truck field!*

CHEVROLET MOTOR DIVISION, General Motors Corporation
DETROIT 2, MICHIGAN



—FOR TRANSPORTATION UNLIMITED!

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Chevrolet's 4-SPEED SYNCHRO-MESH TRANSMISSION offers quicker, quieter and easier operation in one-ton and heavier duty trucks. Faster shifting maintains speed and momentum on grades.

Chevrolet trucks have the famous CAB THAT "BREATHE!"* Fresh air is drawn in and used air forced out! Heated in cold weather.

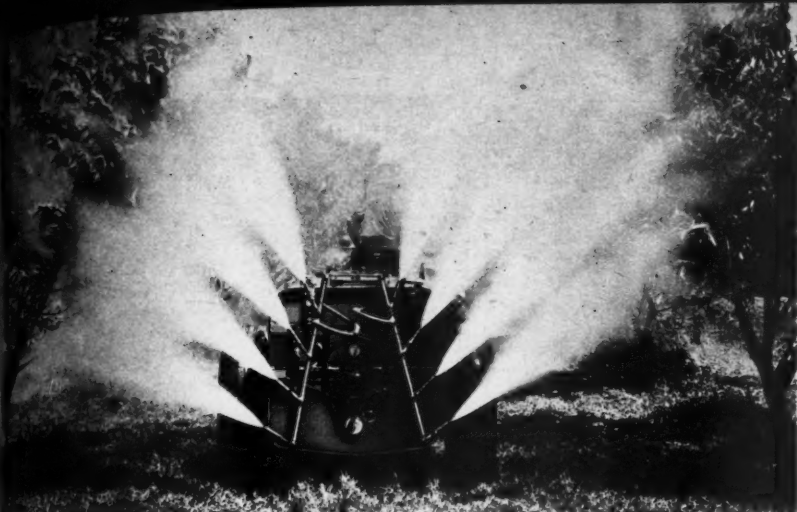
Chevrolet's power-packed LOAD-MASTER ENGINE provides improved durability and efficiency as well as the world's greatest economy for its size!

Chevrolet Advance-Design brings you the FLEXI-MOUNTED CAB, cushioned on rubber against road shocks, torsion and vibration.

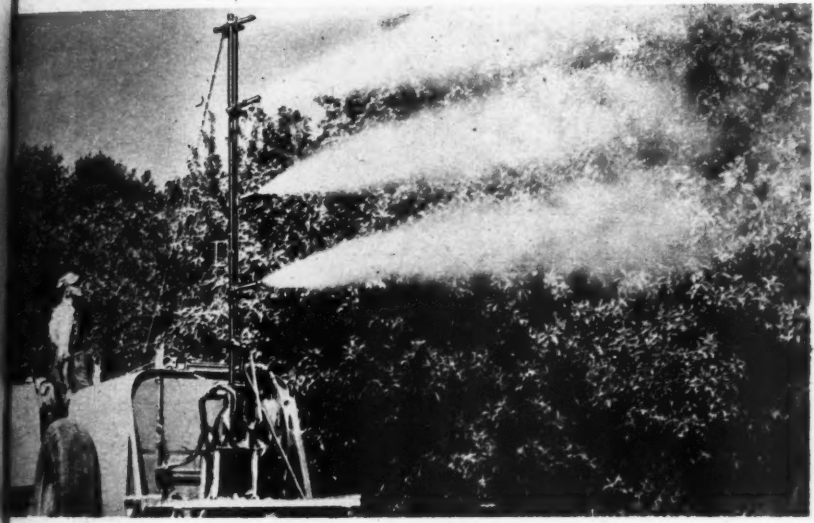
Chevrolet's exclusive SPLINED REAR AXLE HUB CONNECTION adds greater strength and durability to heavy-duty models.

Uniweld, All-Steel Cab Construction • Large, Durable, Fully-Adjustable Seat • All-Round Visibility with Rear-Corner Windows* • Heavier Springs • Super-Strength Frames • Full-Floating Hypoid Rear Axles on $\frac{3}{4}$ -Ton and Heavier Duty Models • Specially Designed Brakes • Hydrovac Power Brakes on 2-Ton Models • Standard Cab-To-Axle Length Dimensions • Multiple Color Options.

*Fresh air heating and ventilating system and rear-corner windows with de luxe equipment optional at extra cost.



THIS ACTION PHOTO (above) again demonstrates why the LOW-BOY spray mast is John Bean's answer to your problem of getting complete coverage of low-growing trees by fast, economical mechanized spraying. The John Bean LOW-BOY mast is readily attached to most John Bean sprayers. It has 8 spray guns (not nozzles) and the tractor driver has complete control of direction for spraying right, or left, or both sides. One-man operation means more profit. Your John Bean dealer can give you full information on the new LOW-BOY spray mast and you'll be pleased at the low cost.



FOR EVERY COMMERCIAL ORCHARD there are John Bean HANDIMASTS and AUTOMASTS that bring mechanized spraying within the reach of every grower. Above, is the 4-gun AUTOMAST for John Bean sprayers with outputs of 15 to 35 G.P.M. Every commercial orchard will find profits up and costs down when John Bean mechanized spraying equipment is used.

COVERAGE OF UP TO 50 ACRES A DAY by one man is easily accomplished with the John Bean 8-gun, oscillating, AUTOMASTS. Photo right shows this 8-gun mast operating in apples. It is ideal for cherries, too. The mast delivers up to 60 gallons of insecticide per minute and the tractor driver operates all controls.



NOW! *John* **BEAN** **MECHANIZED SPRAYING For Every Orchard**

John Bean has the complete line of automatic and semi-automatic sprayers to meet the needs of all commercial orchards for every variety of fruit. John Bean mechanized spraying methods cut spraying costs through faster, more economical labor-saving operation. Solve your 1949 spraying problems with John Bean automatic spraying equipment. — Speed Sprayers, high pressure sprayers equipped with Automasts, Handimasts or Low-Boys!

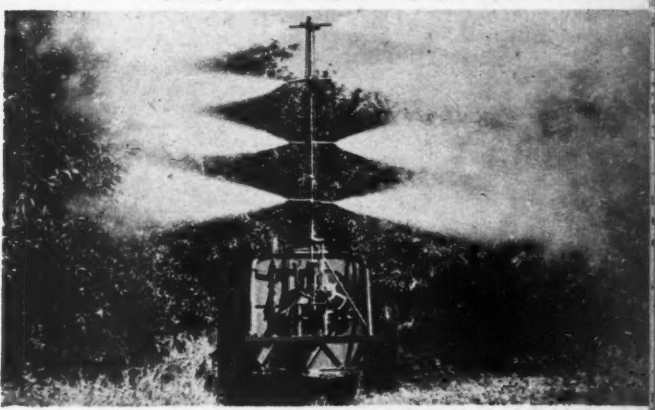
The new **LOW-BOY** provides fast, thorough, automatic protection for low-growing trees, and close-set trees with overhanging branches; assures thorough coverage of the underside of leaves and branches as well as topside. Low, compact, easily mounted, LOW-BOY delivers up to 60 G.P.M. with one-man crew.

The **AUTOMAST** permits one man to cover 30 to 40 acres of medium to large apple or cherry trees in one day. The AUTOMAST is available in either 4- or 8-gun model and operation is completely automatic and controlled by the tractor driver.

The 4-gun **HANDIMAST** is semi-automatic spraying at its best. Tractor driver and one man control the full output of from 20 to 60 G.P.M. in orchards with large, medium or small trees. HANDIMAST can be readily converted to full automatic operation.

SPEED SPRAYERS thoroughly cover 50 or more acres a day with one-man operation. Complete protection results from the displacement of air in the tree with a large volume of air saturated with spray solution. **SPEED SPRAYER** is tops for performance, protection, speed and economy.

Write for new 1949 Sprayer catalog — or let your dealer show you how John Bean mechanized spraying will boost your profits and protect your crop.



SPEED SPRAYER GIVES COMPLETE COVERAGE, and that means complete protection of your crop and your profits. New driver-operated, 4-way spray control permits quick change: (1) spray to the left, or (2) to the right only; (3) spray both right and left, and (4) spray extra high for tall trees. Use **SPEED SPRAYER** with semi-concentrates so one tank of material covers 2 to 4 times as many trees with dependable **SPEED SPRAYER** protection. Get new 1949 John Bean Orchard catalog from your dealer, or write.

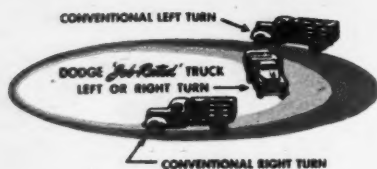
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DIVISION OF FOOD MACHINERY & CHEMICALS CORP.

"Job-Rated" TO FIT THE JOB



PLUS . . .
these important
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New Dodge "Job-Rated" trucks provide an entirely new ease of steering and handling. You can turn in much smaller circles, right and left, because of a new type of "cross-steering," plus shorter wheelbases and wider tread front axles.

For the location of the Dodge dealer in your community,
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FIT THE JOB . . . LAST LONGER !

Trucks that *fit your job* save you money . . . in many ways.

They save on gas, oil, and tires. They save on repairs. They stay on the job; last longer.

For such a truck, see your Dodge dealer. Tell him what you haul, your load weights, and your operating conditions.

He will then recommend a Dodge "Job-Rated" truck that has been engineered and built to fit *your job*.

Your new truck will have "Job-Rated" power, for performance with economy.

Every other unit will be "Job-Rated" for long life and dependable operation.



MORE COMFORT AND SAFETY

1. Plenty of headroom. 2. Steering wheel, right where you want it. 3. Natural back support, adjustable for maximum comfort. 4. Proper leg support, under the knees where you need it. 5. Chair-height seats, just like you have at home. 6. 7-inch seat adjustment, with safe, convenient hand control. 7. "Air-O-Ride" cushions, adjustable to weight of driver and road conditions.

NOVEMBER

1948

VOL. 68

No. 11

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Our cover this month illustrates an outstanding variety of grape on this continent—the Concord. Because of its adaptability to varying soil and climatic conditions, it is grown in all grape regions for commercial and home use. (Photo courtesy the Welch Grape Juice Co.)

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AMERICAN FRUIT GROWER

LETTERS TO THE EDITOR

More on Power Take-off

Dear Sir:

I differ with J. Leonard Bradford who wrote a letter in your August issue in favor of using a power take-off to run a spray pump. In asking for comments for or against the take-off, he says that the only disadvantage he can find is that the pump is not operating when the tractor clutch is thrown out.

I have always used a power take-off, and while it has the great advantage of eliminating the extra repair and maintenance costs of another engine, I would still be better off with the other engine. The power take-off has the prime disadvantage of making the spray pressure dependent on the speed of the tractor. If you have adequate pressure while moving along slowly spraying 30-year-old trees, then your pump will be beating itself to death when you go at a faster clip doing 10-year-old trees, and you also have to cut down your pressure control or blow something up. Shifting the tractor into a higher gear rarely solves the problem. My present outfit, with its take-off, gives me satisfactory service by and large, but with an independent power unit for the pump, it would give me excellent service.

On the other hand, I have found the power take-off entirely suitable for dusting and see no need for using a separate engine on a duster.

Shirley, Mass.

E. Mott Davis

When Is a Prune a Plum?

Dear Editor:

I am a pupil of a high school biology class. I had a dispute with my teacher and other pupils on these questions: Are prunes always made from dried plums? Aren't there both kinds of trees: prune trees and plum trees?

St. Louis, Mich.

G.H.

Technically a prune is a variety of plum which will dry without spoiling. It has a sufficiently high sugar content that spoilage is prevented and the fruit dries down into a product which will keep.

All prunes are plums, but not all plums are prunes.

In some local circles, however, it is not uncommon to find the word "plum" being used for the Japanese types like Burbank, Abundance, Chabot, and October Purple; while the word "prune" is used for the European types like Bradshaw, Monarch, Italian Prune, German Prune, etc. This is not technically correct, but it is a usage that is developing and perhaps may in time become standard.

Bagging Grapes

Dear Sirs:

We have a grape arbor which we penned off for young chickens. Last year they ate the grapes while the fruit was still in the green stage. Would it be practical to put bags over the clusters?

Paw Paw, Mich.

R.L.B.

The bagging of grape clusters is one of the best ways to protect the fruit from insect and disease attack; it should also discourage the chickens from attacking the clusters. Take ordinary small paper bags, place them over the clusters, fold the corners down, and pin the two upper corners. Further, you will find it a very useful practice for a few choice bunches. Niagara grapes handled this way develop unusual richness and flavor.—Ed.

NOVEMBER, 1948

Fruit Picture Sources

Dear Sirs:

We, in the Future Farmers of America, in Taos find your magazine helpful; however, we need pictures and identifying features for varieties of apples. Can you supply us with these?

Taos, N.M.

Voc. Agri. Inst.

Beach's "Apples of New York," though published 40 years ago, is still standard, in two volumes, with many colored plates, and is available from second-hand book dealers at \$2.75 a volume. Another excellent book which describes and shows outline drawings of leading varieties of all deciduous fruits is the "Cyclopedia of Hardy Fruits" by U. P. Hedrick, Macmillan, \$6.00. A booklet which costs less and which illustrates in color some of the leading apple varieties is available from American Fruit Growers, Inc., Advertising Dept., 122 E. 7th St., Los Angeles 14, Calif.—Ed.

Pear Trees Blossom A Second Time

Dear Sir:

I have a pear tree which blooms in the spring and which, after the fruit is on the tree, blooms again. The tree is about 12 years old and has only borne fruit for two years. Could you give me information as to why it blooms twice?

Indiana

E.J.

You have observed one of the interesting characteristics of the pear. It is not uncommon for young trees, that is, trees which might be said to be still in the "juvenile condition," to perform all sorts of queer capers. If you will observe the tree, should the performance be repeated, you will probably find that the second crop of blossoms arises from a short growth located on the cluster which is bearing fruit. It arises as a lateral growth, and just how and why it does this is a question that has interested and bothered scientists for some time. It is commonly known that fruit buds are formed the previous year. How then, does this new growth, arising from the current season's growth, develop fruit buds and bloom so quickly? Some day someone will work this out and it will be very interesting.—Ed.

About the Dutch Pear

Dear Sir:

J. L. Daniels in the September issue seems to be describing the Sheldon pear.

Holton, Kans.

Chas. Bowell

Dear Sir:

We have been experimenting for the last two years with a pear similar to the one described by J. L. Daniels. It grows to the size of an orange and looks very much like oranges on the tree when ripe. So far the tree appears to be very blight resistant. The tree I got my budwood from was a Kieffer that a pair of mules bit down to the ground when it was small and this tree, I suppose, came from below the graft.

Seymour, Ind.

Carl W. Myers

Dear Sir:

My neighbor, Mr. Ralph W. Orendorff, has a tree that fits the description of Mr. Daniel's "Dutch pear."

Georgetown, Ohio

Edwin B. Flory

Will prices
go up
or
down?



Either way VIGORO* helps stabilize profits year after year with larger, top-quality yields!

The problem of showing a good profit at the end of a grower's year is never easy to solve. Yet, even though prices may go down and costs go up —top-quality yields always "pay off." Hundreds upon hundreds of able growers have discovered how important Vigoro . . . complete, balanced plant food . . . can be in improving profits. For Vigoro supplies in ample amounts *all* the important elements growing things must get from the soil to create both large yields and top quality. Discover for yourself how Vigoro helps.

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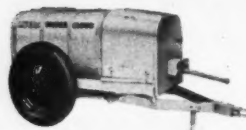


MYERS '49 SPRAYER LINE

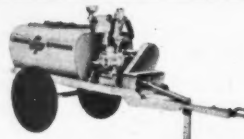
offers greatest efficiency and economy for EVERY FRUIT GROWER



50 & 35 gpm; 600-800 lbs. pressure



20 & 13 gpm; 600-800 lbs. pressure



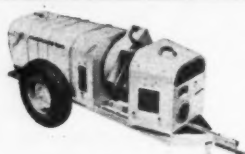
7 gpm; 350 lbs. pressure



50 & 35 gpm; 600 lbs. pressure



20 & 13 gpm; 600 lbs. pressure



50 gpm; 70 lbs. pressure



50 & 35 gpm; 600 lbs. pressure



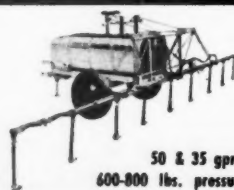
20 & 13 gpm; 600 lbs. pressure



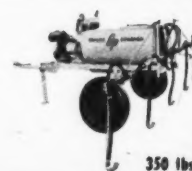
50 & 35 gpm; 600 lbs. pressure



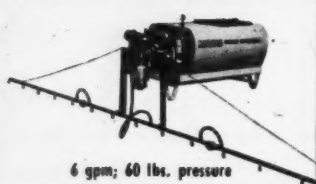
20 & 13 gpm; 600 lbs. pressure



50 & 35 gpm;
600-800 lbs. pressure



7 gpm;
350 lbs. pressure



6 gpm; 60 lbs. pressure



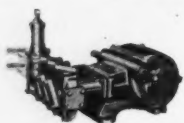
7 gpm; 350 lbs. pressure



2 gpm; 225 lbs. pressure



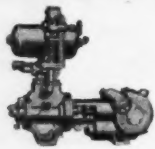
4 gpm; 300 lbs. pressure



50 & 35 gpm; 800 lbs. pressure



20 & 13 gpm; 800 lbs. pressure



7 gpm; 350 lbs. pressure



Silver Fog Spray Gun



Silver Spray Power Gun



Perfect Spray Power Gun

Myers '49 line is remarkably complete and flexible. There are over 40 different models in the various types of sprayers shown here. Wheel and skid models, power take-off and engine drive, with chassis, pumps, engines and tanks in sizes to fit precisely every fruit grower's needs. Myers Bulldozer Pumps, ranging from the giant Bulldozer to the husky Junior, provide more power with less weight. And throughout the Myers line, there's simplicity of design, compactness and advanced features, assuring greatest efficiency, economy and reliability for every spraying operation. Buy right — choose a Myers! Mail coupon for catalogs.

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| <input type="checkbox"/> Hand Sprayers | <input type="checkbox"/> Hand Pumps |
| <input type="checkbox"/> Water Systems | <input type="checkbox"/> Hay Unloading Tools |

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TOWN _____ STATE _____

COUNTY _____ R.F.D. _____



THE VIRUS PROBLEM

A. Mysterious and Serious Menace in the Orchard

By L. C. COCHRAN, U. S. Department of Agriculture

MUCH CONCERN is being felt throughout the fruit producing areas of North America over the increased number of new and devastating virus diseases, which are reducing crop yields and killing fruit trees. This concern is bolstered by grim legends of the losses accompanying the periodic epidemics of peach yellows during the 1800's in eastern United States and reminds us what virus diseases can do if left uncontrolled.

Before going into the details of the problem, it is essential that certain

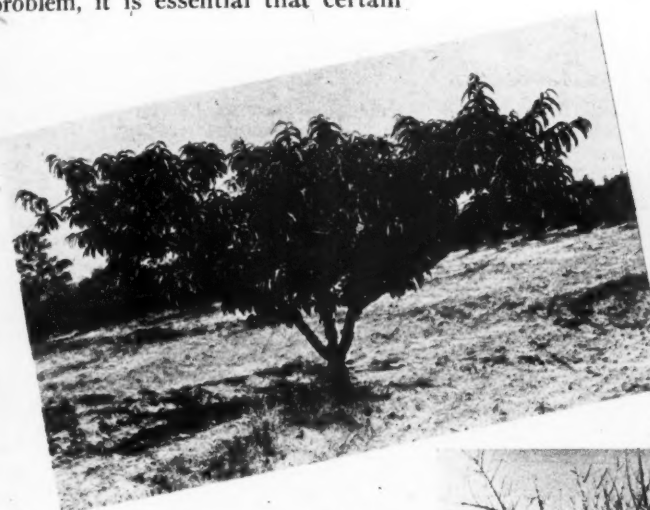
issues. Diagnosis in the orchard is chiefly by recognition of characteristic symptoms on the host plant and reproduction of these symptoms in a previously healthy plant by grafting it with tissue from the diseased plant.

No fruit tree virus has been transmitted mechanically from tree to tree with infected juice; therefore it is unlikely that they can be spread by any cultivation procedure such as pruning, spraying, thinning, tillage,

etc. Only one—ring spot—has been shown to pass from an infected tree through its seeds to the seedlings. Inter-area spread usually takes place in nursery stock or graft wood. Once established, orchard spread takes place naturally through insect vectors or through propagation by use of infected graft wood.

Prior to 1930 only five virus diseases—yellows, little peach, red su-

(Continued on page 20)

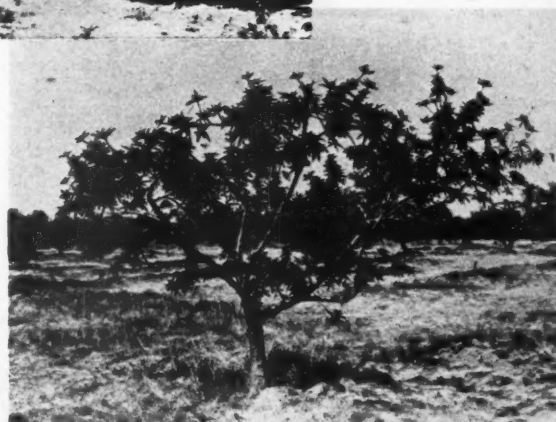


Above, left and right—Elberta on left affected with phony disease. Dwarfing, shortened but denser growth causes affected tree to appear more vigorous than normal Elberta in photograph on right.

basic facts be understood regarding the nature of viruses and the manner in which they produce disease. To most growers virus diseases are something mystical. This is understandable when they see their trees, often the most vigorous ones, which have grown normally for a long time, suddenly develop off-type fruit or foliage or die without any apparent reason. Enough is now known about this group of diseases that they can be explained on the basis of a parasitic cause in the same way as those caused by bacteria and molds. Viruses differ generally from bacteria, being smaller in size and unable to live and multiply outside of the hosts they infect. In the orchard they usually are spread from tree to tree by insects. These insects suck juice from diseased trees, migrate to healthy trees and while feeding leave some of the juice obtained from the diseased tree, thereby infecting the healthy one. Once inside the new tree the virus grows and multiplies and becomes distributed in the tis-



Above—One arm is still only partially affected on this Elberta peach tree suffering from western X-disease. Edge of normal tree can be seen on right in photo.



Right—Peach rosette disease affects Elberta peach trees in this unusual manner.

VIRUS DISEASE

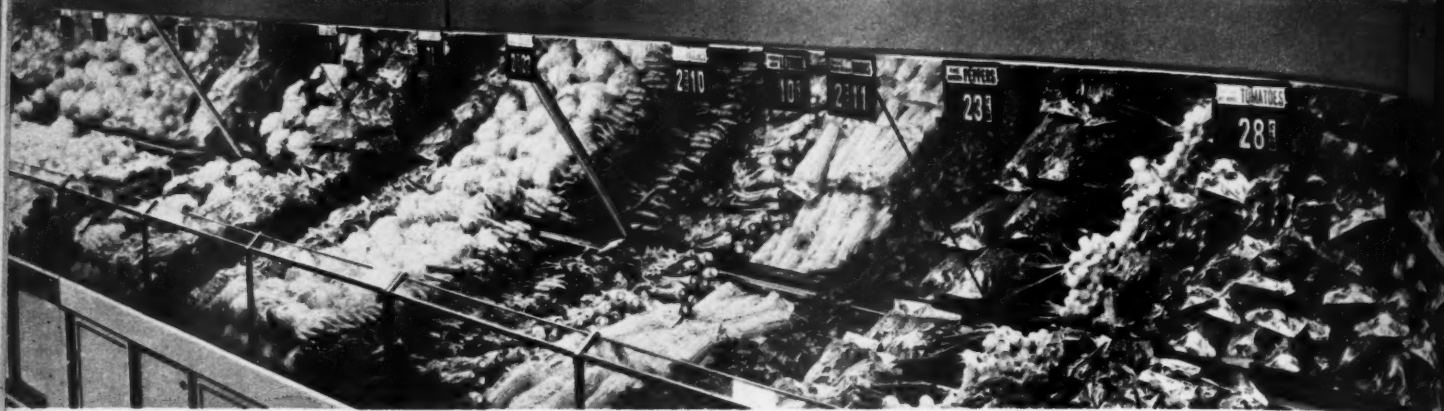
<i>Name of Disease</i>	<i>Geographic Distribution</i>	<i>Economic Importance</i>	<i>Relative Rate of Orchard Spread</i>	<i>Probability of Spread in Nursery Stock</i>
PEACH YELLOWS	Northeastern U.S., adjoining states and Canada.	Was serious, now well under control.	Rapid, responds to prompt removal.	Slight. Disease is well enough known; nurserymen do not propagate from diseased trees.
LITTLE PEACH	Same area as yellows.	Locally serious, more prevalent than yellows.	Rapid, responds to prompt removal.	Slight. Disease is well enough known; nurserymen do not propagate from diseased trees. Harder to diagnose than yellows.
RED SUTURE OF PEACH	Michigan and Maryland.	Locally serious, a typical yellows.	Rapid, responds to prompt removal.	Some. Disease is well known; nurserymen need assistance in diagnosing the disease in the orchard.
PEACH ROSETTE	Southeastern U.S. and adjoining states.	Locally serious, spreads in close foci.	Rapid, responds to prompt removal.	None. Infected buds cause death of nursery stock before it can be moved.
PHONY PEACH	Southeastern U.S. and adjoining states.	Serious. Annual loss approximately 75,000 trees removed. 1,500,000 diseased trees removed since 1929.	3-20% of trees in the orchard annually in central Georgia.	None. Evidence indicates virus not carried in budwood. Uniform state quarantines prohibit growing nursery stock within one mile of infected trees.
PEACH MOSAIC	Southwestern U.S. and Mexico.	Serious. Annual tree loss in controlled areas approximately 5,000 trees. Since 1935 250,000 diseased trees removed. Partial crop loss in uncontrolled areas.	Rapid, variable, more rapid in some areas than others.	Easily spread in budwood. Uniform state quarantines provide inspection of nursery and budwood environs and prohibit growing stock or taking buds within one mile of infected trees.
PEACH X-DISEASE (eastern form)	Northeastern U.S., adjoining states and Canada.	Serious. Ruins trees, but easily controlled by removing diseased choke-cherries within 500 feet of orchard. Promises to be serious on sour cherries.	Rapid, near diseased choke-cherries. Spread occurs from choke-cherries to peach but not peach to peach.	Remote. Diseased buds rarely make merchantable trees.
PEACH X-DISEASE (western form)	Northwestern U.S. and Canada.	Most serious disease of peach in western U.S. Implicated in the little cherry and buckskin diseases.	Rapid, peach to peach. Many orchards in Utah, Idaho, Oregon and Washington nearly 100% affected.	Remote. Diseased buds rarely make merchantable trees. No restrictions in many areas to prevent growing of nursery stock near diseased orchards and natural spread to the growing nursery stock.
PEACH YELLOW BUD MOSAIC	Winters district and vicinity, California.	Serious. This disease in 12 years has spread from a few trees to scattered trees over an area 35 to 50 miles long.	Moderate. Spreads mostly contiguous, tree to tree.	Infected areas under California State quarantine, prohibiting movement of nursery stock from within to outside the quarantined area.
PEACH WART	Northwestern U.S. and Canada. Was brought into California on budwood but was removed. One case reported in Arizona.	Potentially serious.	Orchard spread is slow where known with the exception of one area in western Washington where spread was rapid.	Excellent. This disease produces symptoms only on peach fruit. Budwood taken from diseased trees carries the virus and has been the chief method by which this disease has been spread. Oregon and Washington have included wart in their certification program.
PEACH RING SPOT	In many fruit plants in western U.S. Probably nearly universal in cherries throughout U.S. and Canada, rare in peach in central and southeastern U.S. but common in western U.S.	Some forms severely damage peach, especially first year, reduce vigor of cherry, both sweet and sour. Full extent of damage is unknown and variable due to presence of many forms of the virus.	Moderate to rapid in western U.S.	Excellent. Many cherries are carrying the virus without symptoms and buds from them carry it. Has also been found in nursery stock of apricot, plum, almond, and peach in western U.S.
CHERRY TWISTED LEAF	Washington and British Columbia.	Potentially serious while infected trees are still scattered. The disease ruins the Bing variety and can be carried by others with little or no symptoms.	Slow to moderate. In one orchard in Yakima where diseased trees were removed, 15% of the remainder were found diseased 3 years later.	Good. This disease does not kill trees. There is considerable evidence that it has been spread in symptomless pollinators such as mazzard grafted onto Bing.
LITTLE CHERRY	British Columbia, Canada. Similar troubles in scattered orchards in Washington, The Dalles, Oregon, and Farmington, Utah.	Serious. This disease is the most serious threat to cherry culture in the Northwest.	Spread was so rapid in British Columbia that in 15 years hardly a single normal tree is left in the Kootenay Lake district; 3 affected orchards were found in Washington in 1946 and 289 in 1947. More time is needed to determine the rate of spread there.	This disease produces practically no symptoms on cherry except failure of fruit to size and mature, yet buds from diseased trees carrying the virus produce normal appearing nursery stock. There are no federal or state quarantines to prevent propagation of nursery stock in the diseased area. The State of Washington and the USDA are ardently studying the disease; the State of Washington has included it in their budwood certification program.

CASE OF STONE FRUITS

Name of Disease	Geographic Distribution	Economic Importance	Relative Rate of Orchard Spread	Probability of Spread in Nursery Stock
ALBINO CHERRY	Medford-Ashlands district in western Oregon.	Potentially serious. This disease is a killer. Kills trees in 2 years. To date it is limited to one small area in Oregon, surrounded by a mountain barrier, where it is rapidly killing cherries. The danger is from its getting out into other more important areas.	Rapid. In one orchard the following sequence was charted by Zeller and Milbrath of the Oregon station: 1943—2 trees (removed) 1944—0 1945—86% of 389 trees 1946—100% of 389 trees.	Remote. Diseased buds probably would not produce a merchantable tree. No nurseries are operating in the infected area but there are no quarantine restrictions on movement of diseased material.
CHERRY BUCKSKIN (may be related to western X-disease of peach and little cherry of Oregon and Utah)	Green and Napa valleys, California.	Many trees have been lost in these valleys. All varieties appear to be affected and are worthless after all parts of the tree become affected.	Slow to moderate. Cherry trees are long-lived in this region and some orchards have been entirely taken over a period of years.	Buds from affected cherry trees growing on mazzard rootstock carry the virus. There are no restrictions in the way of quarantines to prevent movement of diseased budwood.
CHERRY RUSTY MOTTLE	Northwestern U.S. and Canada.	There are many forms of this virus, the severe forms greatly reducing the yield on affected trees. Mild forms cause less damage.	Spread has been variable, rapid in some spots and slow in others.	This disease has been carried in nursery stock and is now included in the budwood certification procedure in Washington and Oregon.
CHERRY MOTTLE LEAF	Northwestern U.S. and Canada, scattered. 1943 survey in Washington showed 3.5% of symptom expressing varieties affected.	There are many forms. The severe ones ruin Bing and Royal Anne but can be carried by Republican and Lambert with little damage. Many trees have been lost in local areas of infested region.	Generally slow but rapid in certain local areas. Reeves has shown the native pin cherry to carry the virus without symptoms and spread is more rapid where affected pin cherries are present.	This disease is a typical mosaic and bud from diseased trees carry the virus. Both Washington and Oregon have included it in their budwood certification procedure.
CHERRY RASP LEAF	Northwestern U.S. and Canada, scattered.	There are many forms, the severe ones ruining trees and the mild ones doing little damage. Many scattered trees have been lost.	Spread is generally slow but was rapid in the Delta section of Colorado. Appears to be increasing in central Washington.	There is more danger of spread of the medium and mild forms in nursery stock since severe cases do not produce good budwood and are too striking to be overlooked by propagators.
NECROTIC CHERRY RUSTY MOTTLE	Utah, possibly in California under the name cherry blister.	This disease appears to ruin Lambert and Bing. It is prevalent only in certain orchards and is distinct from regular rusty mottle.	Slow. Evidence indicates it has been spread chiefly by grafting virus-bearing but symptomless pollinator into orchard variety trees.	This disease could easily be carried in nursery stock. Tartarian and English Morello appear to be symptomless carriers. Morello rootstock propagated from suckers should be avoided.
APRICOT RING POX	Northwestern U.S. One case in southern California.	Potentially serious. Occurs only in scattered trees. Fruit on affected trees worthless.	Slow, except in one orchard in Colorado.	This disease could easily be carried in nursery stock if propagated from diseased trees.
SOUR CHERRY YELLOWS	In nearly all the sour cherry-growing areas of U.S. and Canada.	Serious. This disease is an insidious type reducing the crop on affected trees up to 50%, but never killing the tree. Its widespread occurrence is the cause of millions of dollars of damage.	Slow to moderate, but consistent year after year.	Much of the occurrence of the disease is traceable to infected nursery stock. Diseased trees in warmer areas may carry the virus without symptoms. In cooler areas young trees shed affected leaves and may be taken for normal. Several mid-western states are attempting to obtain and supply yellows-free budwood.
SOUR CHERRY NECROTIC RING SPOT	In a high percentage of sour cherry trees in nearly all of the growing districts.	Uncertain. Probably caused by a form of the peach ring spot virus. Budwood from diseased trees gives a poorer stand and less vigorous nursery trees. There are many forms of the virus giving variable reaction.	Trees usually show symptoms only the first year they are affected, therefore symptom-bearing cases represent new cases and spread.	The virus causing this disease is quite generally present in sour cherry budwood and nursery stock, from trees showing no symptoms. Wisconsin and Michigan have taken the lead in trying to obtain virus free budwood. Oregon also has some virus-free budwood.
SOUR CHERRY PINK FRUIT	Western Washington.	Potentially serious. Ruins the fruit on affected trees and many trees die. Prevalent in certain orchards around Kent and Puyallup.	Slow. The danger lies in what it might do if it got into other sections.	Remote. Old affected trees are low in vigor and would not furnish good budwood.
PRUNE DIAMOND CANKER	California. This disease affects only the French prunes (Agen).	Scattered in old French prune orchards in central California. Affected trees are reduced in vigor and yield.	Unknown.	Evidence indicates infected budwood has been the chief means of dispersion. Young trees carrying the virus appear vigorous and do not show symptoms until they are 6-8 years old.

Virus diseases of minor importance because of small number of affected trees or production of only mild effects on their hosts not listed above include: Peach rosette mosaic, Michigan and New York; Muir peach dwarf, California; peach mottle, Idaho; asteroid spot, southwestern United States; peach calico, northwestern United States; peach golden net mosaic, Colorado; peach blotch, Ontario, Canada; peach necrotic spot, Michigan; cherry mild rusty mottle, Oregon; Lambert cherry mottle, British Columbia, Canada; cherry black canker, Washington and Oregon; cherry rugose mosaic, western United States; cherry tatter leaf, northeastern U. S.; Flowering cherry rough bark, Oregon; prune dwarf, northern U.S. and Canada; standard-prune mosaic, California; plum line-pattern mosaic, northern United States and Canada; and almond calico, California.

FRESH FRUITS & VEGETABLES



HELPING THE RETAILER TO MERCHANDISE FRUITS

By RICHARD T. MEISTER

TODAY 500,000 retailers of fresh fruits make up the great army of retail outlets which annually market more than four million tons of fruit. The sales ability of this great national group vitally affects the welfare of the entire fruit industry. Their sales are final; their contacts with the consumer the strong or weak link in fruit marketing. How the retailer sells, how and where he displays his fruit, his pricing policy, his profits, the quality of his merchandise all determine the volume of fruit sales. Modern retailing is a complex, highly scientific, well-organized, and expensively equipped business. It is a far cry from the old days when fruit was sold from door to door, and it is little wonder that the fruit counters of a substantial number of retailers are not operating at full capacity.

Today several groups are helping to bring retailers up-to-date on merchandising methods. Progressive fresh fruit and vegetable wholesalers are carrying on aggressive programs to educate retailers. Inland Trading Company of Chicago, Ill., provides a good example of a wholesaler who goes to great lengths in helping retailers. The Inland retail experts know from experience where fruit counters should be located. They know how fruit should be arranged to attract the housewife, what equipment is needed and where it can be obtained. They know how far a retailer should go in the purchase of expensive equipment. They virtually accept the responsibility for the success of fruit sales, and they seldom err because they have the composite experience of more than 2000 retail outlets. They have earned the confidence of the retailer by increasing his fruit profits.

As John Summers, president of the 28-year-old company, told me, "We work closely with our 2000 retailers because we have found through experience that a retailer can greatly increase his fresh fruit sales if he has good fruit and knows how to merchandise it." The Inland Trading Company's program has two parts: 1) Making available to retailers high quality fruit in top condition, and

2) Working with the retailer where his problems exist—at the fresh fruit counter.

Inland goes to great length to give retailers high quality fruit. John Summers has built a number of ripening and conditioning rooms, and little fruit is delivered unless it is in optimum condition. Summers claims that fruit properly conditioned can be more delicious than fruit picked tree-ripe from the tree. Inland is the only house in Chicago that regularly ripens winter pears before delivering to the retailer. Great pains are taken to purchase only high quality fruit in good condition. Working closely with growers and with their own Michigan apple orchards, Inland is developing new containers and consumer-size units de-

(Continued on page 27)



Inland Trading Company is interested in new fruit containers to help retailers. Above left — Michigan peaches in the Colorado wooden box. Many consumers prefer to buy the entire box as it fits into lower shelf of average refrigerator. Left and below — Two new consumer-type packages devised by Inland Trading.

ORCHARDS VERSUS DEER

By ROCKWOOD N. BERRY
Maine State Pomological Society

FOR THE past few years orchardists throughout the East have been alarmed by the increasing amount of damage by deer in orchards. This is a problem that is not easily solved by individual orchardists, and even group action has not lessened this serious threat to the orchard industry. In the State of Maine alone, crop and orchard damage claims range between \$25,000 and \$50,000 per year, as determined by the Fish and Game Department. It is the opinion of many orchardists that the payments allowed on a majority of the orchard claims are about 50 percent compensation. Even if 100 percent compensation were allowed by the State, the orchard industry would suffer. The orchardist is working on a long term investment, and he must grow trees before he can get apples. To say the least, the deer threat is stalling a healthy expansion program in Maine. What possible avenues are open to solving this problem?

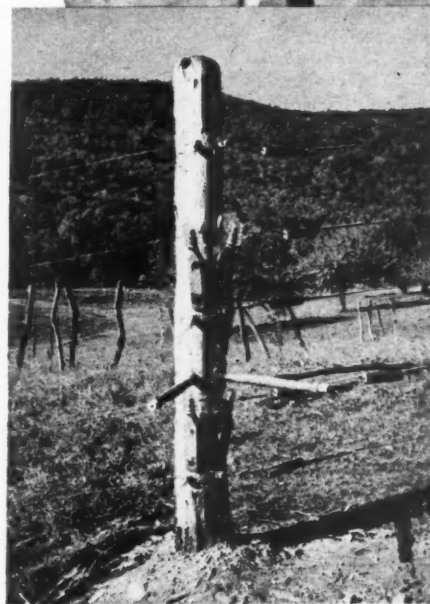
As I see it, there are four approaches which may be classified as follows:

- A. Claims and adjustments.
- B. Diminution.
- C. Repellents.
- D. Fencing.

Claims and adjustments follow the line of least resistance. In this category we find the groups who are favorable to game conservation and would let orchards come and go as they may. Included in this group are all the efforts to make the State pay for damage claims. An appendix to this article entitled, "Method for Evaluating Deer Damage," outlines the result of a study made by a committee of the Maine State Pomological Society and has received the approval of the growers. This approach does not stop deer but does make the paying agency aware of the problem. It is considered to be a fair appraisal of damaged trees, and if fully adopted by the game commission would no doubt recompense tree loss nearly 100 percent. However, it has not been fully accepted by the paying agency, and, even if it were, it is not a solution to our deer problem. We want to raise apples, not feed deer for the sake of exchanging a new dollar



Courtesy
U. S. Fish and
Wildlife Service



This type of electric fence is 90 per cent effective in controlling deer in Vermont orchards. Cost is 50 cents per rod. Photo courtesy Vermont Fish and Game Service.

for an old one. That is why any efforts in this direction, while plausible as a stop-gap measure, will never solve the deer problem.

Diminution takes in all the measures directed to eradicate the deer. Many orchardists have resorted to shooting deer in their own orchards, by day and by night. As far as the orchardist is concerned, this is a

trying job and no motive for sport persists. Constant patrolling is required, but those who are good shots find it a very effective way to eliminate damage. However, the orchardist soon finds himself assailed as a "poacher" or "game criminal." The public little realizes how destructive a creature the cunning deer can be, and conservation-minded fish and game clubs view with alarm the supposedly wanton destruction of their game herd. If the public fully understood the situation and were well versed in the state game laws, I am sure their concern for the deer would not be so out of balance. Maine game laws specifically state that, "Any person may lawfully kill any wild animal, excepting beaver, or any wild bird found in the act of destroying that person's property." Diminution is an effective method of stopping deer damage. A change in the game

(Continued on page 18)



• Georgia Muscadines Rank High in Flavor and Price • The Elements Take Their Toll of Fruit Crops

GEORGIA—The largest muscadine grape crop in recent years was harvested this fall. Growers received as high as \$225 per ton for these grapes from the wineries!

The Hunt is still the best commercial variety of muscadine grown in Georgia. In an acre vineyard on which yearly yields have been kept the average annual production over a 10-year period has been just under five tons. This year the yield was 6.6 tons!

The productive life of muscadine vineyards seems to be almost indefinite. Vines over 100 years old are not unusual. Production costs are low since harvesting is less expensive than with other species of grapes, and as yet spraying is not ordinarily necessary.

Muscadine grapes may be consumed fresh, but the greatest opportunity is as a process grape. Most tonnage at present is used by wineries in producing a wine highly esteemed by connoisseurs. As additional acreage comes into bearing, the grapes will be manufactured into juice, jellies, and conserve. A juice which compares favorably with Concord and a grape conserve already are in production in a pilot plant. Concord grape growers can look for increased competition from muscadine products in the future. The muscadine grape is well adapted to the Southeast and since yields are high and production costs low, it will be a real competitor.—*Earl F. Savage, Experiment, Ga.*

IOWA—Perry Crandall, superintendent of the Bluffs Experiment Fruit Farm at Council Bluffs, reports the following interesting comment about budding as it relates to growth the following year:

"The hardy stock trees that were budded last summer are developing rapidly. We have noticed that the buds which broke and made some growth last summer have grown twice as much as those buds which didn't break until this spring. This year we put in some buds during June, hoping to force them into growth yet this season. It has been thought that if the buds grew the first season they would suffer winter injury and would be killed. Now we believe that even if they do kill back to some extent, we will be ahead of the game."

Observations in and out of Iowa concerning budding on hardy stock trees indicate that where buds are placed on scaffold branches three to four feet from the leader (to take full advantage of hardy understock), there is some danger to the intended future development of the framework of the tree if two precautions are not observed:

One is to not over-prune or strip the spur-like and twiggy growth of the understock; the other is not to permit the topworked variety to bear too heavily during the first year or two it begins to bear, until the tree is structurally strong.

Budding early in the season, even though the tip may winterkill, has the possible advantage of developing more and stronger

side branches closer to the point where the bud was originally set. Frequently the late set buds make their first growth the following season in a leggy, unbranched fashion if not "tipped".—*Wm. H. Collins, Sec'y, Iowa Fruit Growers Assn.*

KANSAS—An important apple marketing trend is apparent in the comment by H. L. Drake that a local dealer recently advised an Indiana grower not to ship his bushels of Grimes, Staymen, or Turleys into Bethel area as his trade wanted only boxed and wrapped apples from Northwest!

Brown rot went on a rampage in the Manhattan area, destroying half of the peach crop and 60 to 70 per cent of the plums, reports R. J. Barnett.

July 14 was a fatal day for growers in the Hutchinson area. Winds of 100 mile proportions, 40 minutes of hail, and 10½ inches of rain in two and three-quarters hours completely destroyed the fruit crops, and fruit tree loss was terrific, according to Earl Stoughton. One block of Jonathans sprayed on July 12 was estimated to pick 1000 bushels. A grand total of 14 boxes was harvested!

Similar misfortune was experienced early in June in the Halstead fruit area, according to F. R. Hasler.—*Geo. W. Kinkead, Sec'y, Topeka.*

NEW HAMPSHIRE—Horticultural Day at the New Hampshire Experiment Station on August 27 gave the many visitors an opportunity to see over 40 projects being carried on at the Horticultural Farm, including work on vegetables, fruits, nuts, and flowers. Prof. E. M. Meader was kept busy answering questions about the more than 150 introductions of Korean plant material he obtained in Korea while

"IT LOOKS LIKE A HYBRID"



Photo by Sterling A. Smith

J. C. McDaniel (left), secretary, Northern Nut Growers Association, Inc., and Ohio member Geoffrey A. Gray examine foliage of Turkish tree filbert seedling during tour at recent Norris, Tenn., NNGA convention.

there in 1946 and 1947. Among the introductions which look promising are a very early ripening watermelon, which ripened at Colebrook, N.H., last year, an early maturing variety of edible soybean, and interesting early melons, eggplant, and cucumbers.—*E. J. Rasmussen, Ext. Service, Durham.*

NEW YORK—Growers are much concerned about the lack of nitrogen which is showing up in many yellow-foliaged orchards this year. The price of foolishness is heavy and the destruction of Germany's nitrate factories to prevent her making war in the face of Russian aggression is one of the queer things we fail to understand in our national policy.—*D. M. Dalrymple, Sec'y, Lockport.*

TENNESSEE—Our fruit growers, without going overboard for the "organic" cult, are making profitable and increasing use of the so-called natural fertilizers in their orchards. These supply humus materials, reduce erosion, and furnish a good part of the trees' requirements for nitrogen, particularly. Animal manures, waste plant products like cotton boll hulls and wheat straw, and composts, where available, are establishing sod covers of perennial grasses and varieties of white clover. As the grass component of the sod, bluegrass is the favorite in sections where it grows well. There is some interest in trying out in orchards the new Kentucky 31 and Alta fescue varieties, which are already popular grazing crops.

For peach orchards, we are obtaining about the best results where an adapted winter legume is grown (with a thinly seeded small grain for support in the case of vetches) followed by a minimum amount of summer cultivation. Hairy vetch is usually the heaviest-producing winter legume in our region, on soils where the soil organic matter is not already at a high level. Raymond Adams, of Greenfield, likes to let his vetch grow to maturity and remain as a surface mulch during the summer. He has a block where it has reseeded for four years under this system, and the trees are more vigorous and productive this year than an adjacent orchard in which Korean lespedeza was grown as a summer cover during the same period. Crimson clover, of which Tennessee is by far the largest producing State, is a good orchard cover but somewhat more particular as to soil preparation. Bur clovers have made good winter covers in several west Tennessee orchards but have failed more often than crimson. The hard-seeded crimson clovers ("Dixie" and Alabama strains) should reseed themselves better than the common types. Crimson and bur clovers will be less likely than hairy vetch to give difficulty by climbing small trees.

Our most progressive growers generally supplement their home grown nitrogen and humus with commercial chemicals. Additional nitrogen usually is beneficial under our soil conditions. Phosphate is useful, outside the middle Tennessee phosphate belt, to make the legume covers grow better, while at many locations the fruit is improved by additions of potash.—*J. C. McDaniel, State Hort., Nashville.*



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**CAMPAIGNING FOR
CHERRIES**

• "Make it cheery with cherries" is the promotional slogan for the coming Christmas season drive for increased red cherry consumption. Sponsoring and financing the drive is the National Red Cherry Institute, the first organization of its kind to include both growers and processors in one group. The 30-man advisory committee of the Institute, which is the policy-making body, is formed of 15 processors and 15 growers from the 10 states which produce one per cent or more of the nation's total crop of tart red cherries.

With an advertising budget which will probably exceed \$50,000, more than double last year's amount, the Institute has aggressive plans for promoting this season's crop of tart cherries. The new pack was advertised in September and this month more advertisements, publicity stories, and colorful window streamers will stimulate the consumption of red cherry products during the Christmas season. In January and February advertising and publicity will push National Cherry Week, February 15-22, and the National Cherry Pie Baking Contest. Winners of state pie baking contests, in December, January, and February, sponsored by 4-H clubs and other groups, will go to Chicago during Cherry Week for the national contest. Only young women up to the age of 20 who are non-professional cooks are eligible. Scene of the national contest will be Chicago's Morrison Hotel, and Mr. Duncan Hines, famous food epicure, will head the judging staff which will award a \$200 first prize. To extract the last ounce of publicity, the winner will be escorted to Washington where she will present the President with a tart red cherry pie.

President of the Institute is Karl Reynolds, prominent Wisconsin cherry grower and processor, and vice-president is Horace Putnam of Lyons, N.Y. To insure that representation will be equal between growers and processors, the Institute's by-laws provide for a unique organization. Each state eligible to belong is entitled to elect one grower and one processor for each 25 million pounds of production. From the advisory committee, four processors and four growers are elected to the Board of Directors. And from the directors, the president and vice-president are elected; one must be a processor and the other a grower. To preserve balance, the secretary-

treasurer selected by the board must be a non-member of the industry. Secretary-treasurer is Edgerton Hart of Byrne Marcellus—a company which specializes in organizing industries and which helped organize the Red Cherry Institute. Financing is likewise accomplished on an even basis. Half the total budget voted by the advisory committee is furnished by the growers on the basis of so many cents per ton, and half by the processors.

**NATURE'S TREASURE
CHEST**

• For the first time, Florida advertising will feature both fresh and canned fruit in the same advertisement. Florida Citrus Commission's advertising for the 1948-49 citrus crop, which is estimated at 99 million boxes, will feature full color advertising in six magazines with the theme, "Nature's treasure chest of health and sunshine." Newspapers, radio, and trade papers will be used also.

• Many Florida citrus growers are optimistic about the possibilities of increasing juice consumption. One of the largest manufacturers of frozen orange concentrate, the Vacuum Foods Corporation, last month announced an ingenious plan which will feature high powered promotion for their "Minute Maid" juice. Radio, movie, and singing star, Bing Crosby, in return for 20,000 shares of Vacuum Food's stock, will advertise the juice on a transcribed radio program five days a week. Advantage to the company is the services of a big-time radio star at low cost. Advantage to Crosby is the possibility of high stock profits which are taxable as a capital gain at a maximum of only 25 per cent.

FACTS AND FIGURES

• Appalachian Apple Service reports 1,907,000 bushels stored for fresh use as of October 15, 1948, in Maryland, Pennsylvania, West Virginia, and Virginia. This is approximately the same as for last year. Holdings for processors were 467,000 bushels, 40 per cent less. As of October 1st USDA reports 4,238,000 bushels of eastern apples in storage—an increase of 35 per cent over last year. Frozen fruits in storage totaled 374,907,000 pounds, approximately 25,000,000 pounds less than last year. All frozen fruits were down except strawberries and grapes.

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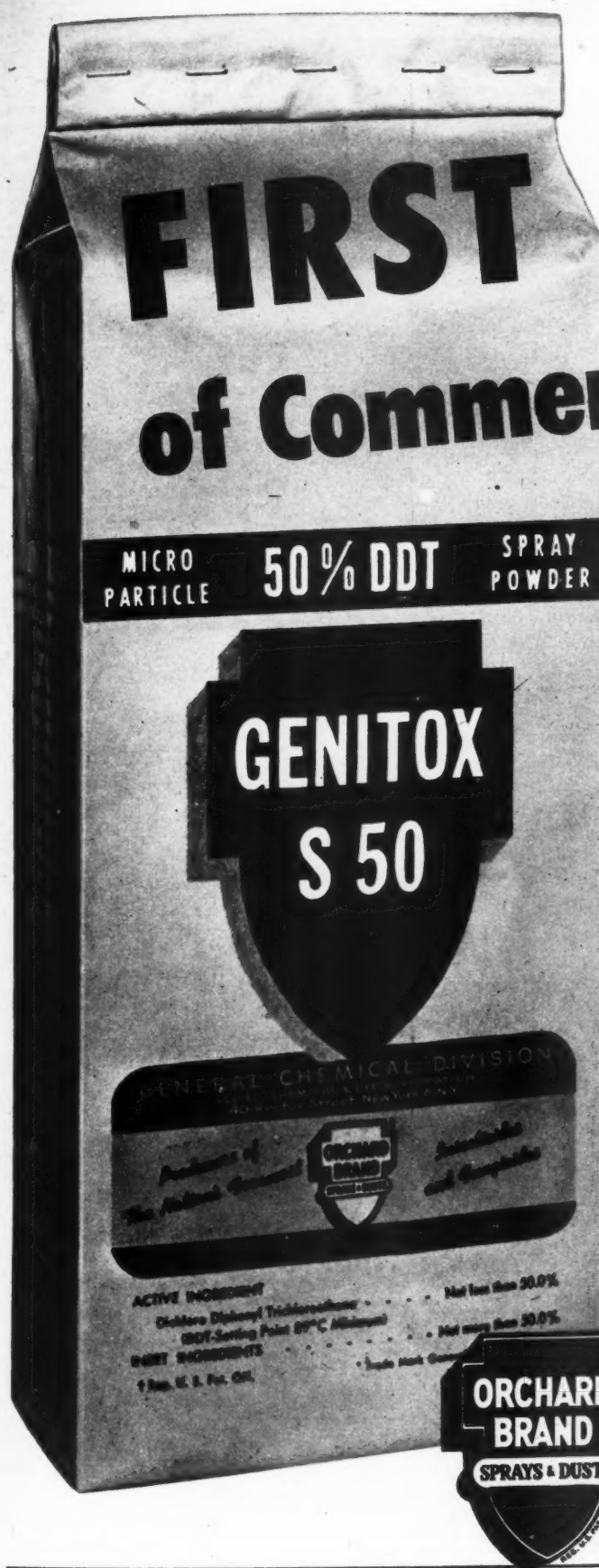
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When DDT was originally released, General Chemical was among the first to field-test it and offer it to commercial growers for orchard use. The qualities of Genitox DDT for high efficiency in spray equipment, good coverage of foliage and fruit, and all-around insect control performance convinced growers that this new General Chemical insecticide could be used with the same confidence as the "old reliable" Orchard Brand products.

That's because all General Chemical spray materials are carefully developed through sound research and thorough field investigations. Then they are produced under the most exacting quality-control conditions. This results in the inherent product qualities which mean year-in and year-out dependability. For '49—choose the best: demand General Chemical Orchard Brand.

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Other Orchard Brand Spray Materials for the Fruit Grower Include:

Lead Arsenate, Astringent & Standard
Genithion[†], Parathion Formulations
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Micro-Dritomic[†] Sulfur, advanced type of sulfur
fungicide
Puritized[†] Agricultural Spray, early scab spray
for apples

Benzene Hexachloride
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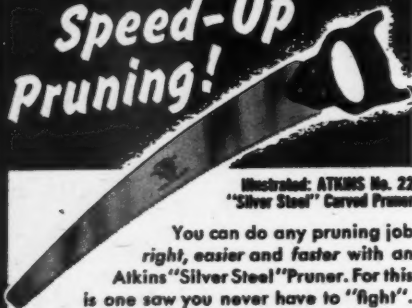
For 30 years Briggs & Stratton 4-cycle air-cooled engines have proven their value, performance, and dependability under the most exacting conditions.

Farmers know that equipment powered with these engines is powered RIGHT. This public confidence has resulted from the engineering leadership, unending research, and the skill of Briggs & Stratton workmen—all directed at making the world's finest single cylinder, 4-cycle gasoline engines.

BRIGGS & STRATTON CORP., Milwaukee 1, Wis., U. S. A.



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"Silver Steel" Curved Pruner

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ORCHARDS VERSUS DEER

(Continued from page 13)

laws to extend the hunting season, or to allow more than one deer per person in the agricultural areas would serve a greater purpose. Such a change would give the public a share in the game and would greatly assist orchardists and farmers who have crops. This would make the deer a paying crop and save that of the orchardist. Such a change has been proposed before legislative groups but, to date, has not received favorable consideration.

Repellents include all of the schemes for keeping deer out of orchards, or discouraging them from browsing, and ends up with a fence which completely corrals the fruit trees. In the line of repellents, there are noisemakers, white rags, tar paper cones, string and rags treated with anis or other concoctions, moth balls, spray solution, dogs, bear hides, and no doubt many others. From this list of repellents we have found moth balls most effective on young trees, and a regular spray solution containing lime sulfur is effective for a short period. One orchardist in Maine thinks highly of tar paper hung in the trees. We have tried a commercial spray solution made specifically for deer control, but the results were not good enough to warrant the cost. To date there is no repellent that will keep deer away for a season that is reasonable in price and not injurious to the tree.

Fencing seems to be the only sure method of keeping deer out of orchards.

Several orchardists in Maine and New Hampshire have erected fences this past year. Generally speaking, a fence should not be less than eight feet in height. Any combination of heavy gauge woven wire fence and barbed wire strands seems to be satisfactory. It is important that the fence start close to the ground and is stretched tight to prevent sagging. Cedar posts should be 12 feet long and three to four inches in diameter at the top. In Maine the Fish and Game Department may stand one-half the cost of the fence. In practice this amounts to the furnishing of the fence only. The erection and maintenance of the fence are up to the orchardist. In already established orchards this presents a real problem, as it is often necessary to clear land on either side and otherwise erect the fence on difficult terrain.

Although fencing is a sure cure for deer troubles, the cost to the orchardist adds greatly to his investment and may prohibit planting new orchards. Maintenance cost is also

an item that should not be discounted in the operational cost. The writer has not been able to obtain cost figures from any orchardist in Maine. It seems that no one has kept a job cost, as the work of erecting a fence has fitted in with other farm work.

In discussing the various approaches to eliminating deer damage, it appears that a better understanding by and co-operation with the game interests is needed. They know many of the feeding habits of deer and can help the orchardist, but there must be co-operation. The farmer—and this includes the orchardist—is conservation minded, but apparently he is poles apart with the fish and game interests. What is needed is a program that will reduce, but not eliminate, the deer herd in the agricultural areas.

Method for Evaluating Deer Damage

Maine growers who have trees damaged by deer first report the damage to the Fish and Game Commission. Following this, the grower estimates the damage with the local game warden and forwards damage claims to the Maine State Pomological Society for presentation to the Fish and Game Commission.

In evaluating deer damage the amount of damage by percentage is estimated according to a carefully worked out schedule. For instance, each side branch injured, up to a limit of five suitable for major scaffold limb development, is scored as 10 percent damage. A damaged leader may be scored up to 50 percent loss for trees over one year. One-year whips may be scored 100 percent loss.

The score card for evaluating dollar loss is as follows:

(a) **Cost of tree.** This figure must be based upon the cost for the year purchase was made as determined by the Maine Apple Tree Pool. Thus, for example, for the year 1945 the tree cost 90 cents.

(b) **Planting Cost.** An average cost of 15 cents per tree is recommended.

(c) **Operational Cost.** This includes yearly operations such as pruning, fertilizing, spraying, orchard culture, and general care. It is recommended that a base figure of 35 cents per year be allowed for trees 1 to 5 years of age, and 50 cents per year for trees 5 to 10 years of age.

(d) **Production.** When it is necessary to replace a tree, production is delayed for the number of years of age of that tree. For example, a two-year tree in the orchard that is totally lost means two productive years lost to the grower.

When an apple tree is retarded or stunted in its growth development, it is recognized that the tree is slow in coming into production. In other words, a tree normally coming into bearing in the 10th year may not reach that normal stage of production until the 14th or 15th year because of deer damage. Therefore, the following table is used:

Orchard Age	Est. Ave. Prod. Loss Beginning 10th Year, in Bushels	Value of Loss @ 75 cents per Bushel
1 year	1	\$0.75
2 years	2 1/4	1.6875
3	3 3/4	2.8525
4	5 1/4	4.125
5	7 1/4	5.625

(Continued on page 26)

AMERICAN FRUIT GROWER

IN THE NEWS

ARTHUR P. FRENCH

Arthur P. French, professor of pomology and plant breeding at the University of Massachusetts, was appointed head of the department of pomology on September 1. French has been on the pomology staff since 1923.



Arthur P. French

His research contributions include "Peach Genetics" in collaboration with Professor J. S. Bailey and "Identification of Fruit Trees by Plant Characters" with Dr. J. K. Shaw and others. He has been actively engaged in the inspection of nursery fruit trees for trueness to name since 1925.

J. WALTER HEBERT

J. Walter Hebert is the new president of the world-wide International Apple Association. He was elected at their recent annual meeting in New York City and succeeds Sam Cohodas.



J. Walter Hebert

Since graduating from Stanford, Hebert has been with the Yakima (Wash.) Fruit Growers Association of which he is now chief executive. For many years he has devoted his time and energy to the fruit industry and has contributed much to the welfare of the nation's apple industry.

GEORGE M. DARROW

At the annual meeting of the A.S.H.S. in September Dr. George M. Darrow of the USDA was elected president for 1948-1949. He is principal horticulturist for Deciduous Fruit Investigations of the Bureau of Plant Industry.



Dr. George M. Darrow

Dr. Darrow is well-known for the many bulletins he has written on small fruit culture and varieties. He is also an author of several articles on small fruits which have appeared in AMERICAN FRUIT GROWER.

WILLIAM P. GILLESPIE

William P. Gillespie, assistant manager of sales in the Hardware Division of Henry Disston & Sons, Inc., has been appointed as manager of the new Market Requirements Department.



William P. Gillespie

Gillespie joined the company as a salesman in 1936 soon after his graduation from the University of Pennsylvania. During the war he handled government orders for the Hardware Division. The new department will interpret customer requirements on product design, utility, packaging, and other features.

Dependable

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America's Favorite Spark Plug



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WINTER!



Install NEW
CHAMPION
SPARK PLUGS



Weather-wise ducks are flying south, and weather-wise motorists are installing new dependable Champion Spark Plugs. It's the best, most economical insurance of snappy winter engine performance if new ones are needed. New Champions insure quick starts, minimum battery drain, and better gas mileage all winter long, when gas consumption is usually up. Insist on dependable Champions—America's Favorite Spark Plug—because they're tops in quality, value, performance and dependability for car, truck, tractor and stationary engines. A quacking duck poster will remind you—"HERE COMES WINTER!"... CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO

FOLLOW THE EXPERTS

DEMAND NEW DEPENDABLE CHAMPIONS FOR EVERY FARM ENGINE

Listen to the CHAMPION ROLL CALL, Harry Wismer's fast sportscast every Friday night, over the ABC network

NOVEMBER, 1948

VIRUS PROBLEM

(Continued from page 9)

ture, rosette, and phony—were known which affected stone fruits. All of these occurred in eastern United States and were considered as primarily affecting peach. Little peach and red suture developed in the same area as yellows and have symptoms sufficiently similar to those of yellows that they are considered to be caused by strains of the yellows virus. Rosette is also of the yellows type but occurs in a different geographic region and has such strikingly different symptoms that it is consid-

ered unrelated to yellows. All of these diseases are now secondary in importance, largely because they are well known by growers, nurserymen, and regulatory officials and are closely rogued from orchards. Little peach and red suture are currently more serious than yellows, principally because of greater difficulty of diagnosis and prompt removal.

The phony disease, fifth of the original group, is still of prime importance and the cause of tremendous losses in southeastern United States. Since 1929, over 1,500,000 diseased trees have been removed. The loss is not limited to the crop loss on these

trees and the cost of tree replacement; to this must be added the cost of inspection, diseased-tree removal, loss of scattered trees in orchards where stands become too sparse to maintain, etc. Without the control program of diseased-tree removal and thereby removal of sources from which spread can take place, the disease, unchecked, doubtlessly would have invaded and ruined peach culture in most areas of southern and central United States. Yet, with the best efforts of the control program, the annual loss is still between 60,000 and 70,000 diseased trees.

The phony disease does not kill peach trees. Diseased trees are dwarfed, but usually are darker green in color and appear more dense than normal. Fruit size is reduced



Fruit storages
cost less with

NOVOID CORKBOARD INSULATION

Both the cost of erecting a fruit storage and the cost of running it are actually *reduced* by installing the finest insulation.

That's a big claim, but the experience of hundreds of farmers, orchardists, and warehouse men confirms it.

Original installed cost of Novoid Corkboard is lower for three reasons. It's a strong load-bearing material that needs no propping up. It's easy to work with; the job moves along fast. And Novoid is available at once, from

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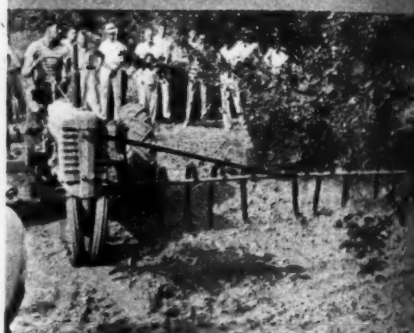
The long-run cost is even lower because Novoid efficiently keeps out heat, doesn't get moisture-soaked, doesn't settle or pack.

Novoid Corkboard is American-made to highest standards from imported bark of the Portuguese and Spanish cork oak. Your nearby insulation contractor can give you all the facts about Novoid. Or write direct to Cork Import Corporation, 39 Park Place, Englewood, N. J.

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HANDY ANDY



An easy-to-make, homemade brush rake attached to a tractor saves hours of tedious work, says Art Higgs of Gasport, N. Y. It gets under the trees and drags out the brush and dumps it into windrows to be picked up by a regular buck rake. Construction is simple—the harrow teeth are clamped on to a 1 1/2-inch double strength pipe which rotates to release brush when trip lever is moved. One 2-inch pipe sleeve, welded onto an I-beam braced onto the tractor frame, and another at the end of the brace rod, support the smaller pipe.

sharply and, after the second year of the disease, few fruits are marketable. Formerly all information indicated that the causal virus was limited to the roots, but new information indicates that the virus is occasionally in portions of the top from which the insect or vector can pick it up. The incubation period following inoculation with diseased scions is 18 to 36 months. It is likely that insects can pick up the virus from normal-appearing trees part way through the incubation period which in part helps explain why diseased-tree removal has not reduced the incidence as fast as hoped.

The sixth stone fruit virus disease recognized was peach mosaic, discovered in central Texas in 1931. It produces yellow mottled patterns in the leaves, dwarfing of twigs, roset-

AMERICAN FRUIT GROWER

tree replaced the cost of removal, in orchards so sparse to the control of removal, sources from the disease, the disease would peach cultivation and the program, even 60,000 trees not kill trees are darker more dense is reduced

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ting of foliage, and reduction in yield and quality of fruit on many of the freestone varieties of peaches, particularly Elberta and J. H. Hale. Since a high percentage of the freestone acreage is Elberta, it was decided to attempt eradication by removal of all diseased trees. Between 1935 and the present time approximately 250,000 diseased trees have been removed. During this period extensive surveys revealed the disease widespread in all of the southwestern states and Mexico. Eradication now appears economically impractical. The present methods of control are by regulating all nurseries within the infected area to prevent further spread within and to areas outside. Control by diseased-tree removal is being carried on in certain local areas where the varieties desired are ones which would be seriously damaged.

Next came the X-disease of peach, first seen in Connecticut in 1933 by E. M. Stoddard. The term X, representing an unknown quantity, was applied to the disease because of its unprecedented and peculiar behavior. Diseased trees appear normal until about midsummer, when within a few days leaves on affected twigs become progressively pale in color, roll upwards, become brittle, and develop red to yellow colored areas, some of which drop out. Leaves on affected twigs usually are shed beginning at the base and progressing toward the tip. Fruit on affected twigs usually shrivels and falls soon after leaf symptom development. Although the disease seldom kills trees entirely, they are rapidly rendered unproductive.

X-disease introduced a new feature in stone fruit virus diseases in the way of a specific relationship between hosts. It was found to infect the native choke-cherry, *Prunus virginiana*, on which it causes a brilliant array of red and yellow colors. It has spread rapidly in this host across eastern and central United States and stands as a menace to peach and other hosts. In the East, spread appears to be chiefly from choke-cherry to peach and removal of choke-cherry within 500 feet of peach orchards is a satisfactory control. In New York, sour cherries have been found affected by the X-disease virus, which raises a new threat. Affected sour cherries are ruined and many die. It is not known whether spread takes place from choke-cherry to cherry or can go from cherry to cherry.

No picture of the seriousness of X-disease is complete without inclusion of the western form, called west-

(Continued on page 22)



THREE of the American Potash Producers, namely, the American Potash & Chemical Corporation, the Potash Company of America, and the United States Potash Company, through their consumer service organization — The American Potash Institute — are constantly endeavoring to make the use of this necessary plant food more efficient and economical. Cooperating with Federal and State Agricultural Agencies in laboratories and experiment stations, the Institute helps promote scientific research and field demonstrations which will result in practical recommendations for potash use. As a clearing-house for this new information, it publishes regularly for the official agricultural advisory forces a magazine called *Better Crops with Plant Food*.

For YOU, using potash in the fertilizer to feed your crops, the Institute maintains a staff of trained agronomists who are at your service. It has available for you free literature from official sources telling how to grow large yields and good quality of crops and maintain soil fertility. Motion pictures on soil and crop deficiency symptoms and means for determining them, as well as films on good soil management, can be obtained from the Institute without charge upon request for showing by county agents, teachers of vocational agriculture, and responsible farm organizations.

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WILL SAVE YOUR TREES FROM—RABBITS, MICE, BORERS, GROUNDHOGS, GOPHERS, SHEEP, GOATS, DEER, WINTERKILL OR SUNSCALD.

OUR OWN EXPERIENCE—We have tested Tre-TeX for every purpose for which we recommend it. Since 1942 at Orchardview, Noblesville, Ind., we have not lost a tree from any of the above causes. TRE-TEX is no longer an experiment. Nothing succeeds like success.

The following folks would just as soon turn off their electricity and go back to kerosene lights, old-fashioned ice boxes, etc., now, as to try and save their trees with wrapping or screen wire. **WHY NOT BE UP TO DATE?**

Read These Twenty-three Testimonials

No. 1. Your product, TRE-TEX has proven better than any I have ever tried in Canada. It stays on longer, and can be put on at any time with results all winter. I have not had any damage since using TRE-TEX.

F. R. OAKLEY—1215 Dovercourt Rd., Toronto, Canada

No. 2. I and several customers have used Tre-TeX for the first time this year, on newly planted fruit trees for sunscald and find it effective, and I intend to give Tre-TeX a more thorough test in different ways in the future.

HEINRICH J. M. KLASSEN, Campo Hermoso, Estacion Patos, Durango, Mex.

No. 3. We find Tre-TeX especially effective for keeping rabbits from eating up the young trees in the winter time. Also used to keep the sheep from eating the trees in the summer months. In fact, I could not grow an orchard without Tre-TeX. (Mr. Caquelin was our first mail order customer, in 1945).

ART CAQUELIN, R. 3, Ottawa, Illinois.

No. 4. I have used Tre-TeX for all of these purposes—mice, tree-borer, deer, winterkill. It will do all you claim and more. It's a Godsend to humanity. P. S.—A man would be a fool to be without Tre-TeX.

HERBERT MERSHON, Box 576, Portsmouth, Ohio.

No. 5. We used Tre-TeX last fall, 1947, on about 575 six and eight-year old trees. It was used mostly for mice. This spring (1948) we only found one tree that had been touched. This tree may have been missed.

S. ORA BUTLER, Pleasant Lake, Ind.

No. 6. Rabbits, Mice and other animals do not damage the bark of fruit trees when Tre-TeX is painted on them. It is much cheaper and considerably less work than using tree bands. It also keeps young peach trees from winterkill in extremely cold winters.

EDWARD HEATH, Sanders, Ky.

No. 7. Tre-TeX is especially effective against the depredations of mice and rabbits. I will use it more extensively this coming season, and am advising my friends and acquaintances to do the same.

GLENN ASPLIN, Lennon, Mich.

No. 8. I have used Tre-TeX for two years and find it will keep the borers out of apple and peach trees. I put out an orchard in 1927 in Excelsior, Minn. and the borers killed all the trees in about three years. Had the same experience at Warsaw, Mo., and Bergman, Ark. I bought here two years ago last March. I have 66 apple, 175 grape, 15 peach, 13 pear, 7 plum and 3 apricot. Have used Tre-TeX on these trees for two years, and have had no borers. Part of apple trees were in heavy weeds and grass, and yet no damage by rabbits or deer, or groundhogs. I am in the National forest and have plenty of varmints—You can look for another order this fall. I won't be without it.

REV. R. B. DENMAN, Fallsville, Ark.

No. 9. Did not lose a tree on ten acres of apple and peach the year you put on the Tre-TeX. Last winter hired boys at \$4 an hour to wrap the apple trees. This cost over \$30. The peach trees were not wrapped and suffered some injury although not killed, possibly because there must have been some Tre-TeX left over from a year ago. You can fix them all this year (15 acres now.)

J. C. CARPENTER, R. R. 4, Greenwood, Ind.

No. 10. I had a small plot that was undermined by moles. I dusted all my corn seed with Tre-TeX and got a perfect stand. Painting the trunks of my fruit trees prevented rabbits from damaging them.

N. S. THOMPSON, Winamac, Ind.

No. 11. We used Tre-TeX to prevent rabbit injury this past season. It seemed to be very effective against rabbits. I will try it again next season.

ASA KELLY NURSERIES, Fordsville, Kentucky.

No. 12. We have used Tre-TeX for several years and find it 100% effective especially for rodents. Before using it, each year we had losses of valuable fruit trees, shrubs, etc., but since I introduced it in our garden,

It costs too much to print them all—and new testimonials almost every day! Send for 4-page testimonial circular—and special offer to AGENTS. We want 3,000 agents within one year—one for every county in U. S. Free Counter Carton for display. Our agents get same price as Orchard Supply Houses, Seedsmen, and Commercial Orchards.

ORDER TODAY—DIRECT FROM THIS AD—

Retail Prices: 10-ounce pkg., \$1 (25 to 35 trees)—1 lb., \$1.50—2 lbs., \$3—6 lbs. (300 trees), \$9—10 lbs., \$14. Parcel post prepaid. LIQUID TRE-TEX, Ready Mixed, 12 qts., \$18—24 qts., \$35. Also in pints, at same rate. Not less than 12 qts. in any one shipment—by express. NOT PREPAID. No. C. O. D. Orders. Full Directions on every package.

TRE-TEX—Box 91, Noblesville, Ind., U.S.A.

VIRUS PROBLEM

(Continued from page 21)

ern X-disease, and its possible connection with the little cherry disease. The symptoms of western X-disease on peach are nearly identical with those of the eastern form. It is considered, separately, for the present, chiefly because spread of the western form apparently takes place from peach to peach without proximity to choke-cherry. Western X-disease is the most serious disease of peach in western United States and estimates have placed the annual loss at upwards of \$500,000. Some orchards in southern Idaho and central Utah and The Dalles area of Oregon are nearly 100 per cent affected. Surveys in Washington conducted in 1942 and 1943 showed 1.8 per cent of all the peach trees in the State affected.

The name "little cherry" was first applied to a trouble on sweet cherries in the Kootenay Lake area of British Columbia. The disease spread so rapidly that after 15 years nearly every cherry tree in the area is affected. A condition also termed little cherry has been found in Oregon and Utah on sweet and sour cherries which appears to be related to the western X-disease occurring on peach in the respective places. In 1946, little cherry comparable to the British Columbia form was found in Washington. It is not known whether the Washington and British Columbia forms can infect peach. The buckskin disease of sweet cherry known in California since 1933 produces fruit symptoms of the little cherry type on sweet cherry and western X-disease on peach. In British Columbia and in Washington the chief symptoms are failure of the cherries to size and mature. Affected trees are not killed, do not develop die back or show loss of vigor. In Oregon, affected trees respond variously, sour cherries particularly declining rapidly, and many trees die. In Utah, both sweet and sour cherries decline, and the majority of trees on mahaleb rootstock are killed. The variable reaction of cherries in the different regions is probably due to the presence of different forms of the virus. The very rapid rate of spread of little cherry in British Columbia makes any comparison to that occurring in the United States alarming.

One more disease which merits special consideration is sour cherry yellows. This disease is widespread throughout the sour cherry areas of United States and Canada and had been present in sour cherries a long time when shown by Keitt and Clayton in 1939 to be caused by a virus. Affected trees are not killed but are

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reduced in vigor and fruit produc-
tion. Estimates based on surveys in
Wisconsin and other areas indicate
that one-third of all the sour cherries
now standing are affected. In well-
established cases fruit production is
reduced 50 per cent on diseased trees,
which would indicate at least a 15
per cent annual crop loss. Using Bu-
reau of Agricultural Economics fig-
ures for 1946 of 117,250 tons worth
\$301 per ton, this gives the stag-
gering figure of over \$5,000,000 annual
crop loss in the United States alone.
This disease is of the insidious type,
in which diseased trees are not killed
but stand as a source from which
further spread takes place. Although
spread is not considered rapid as
compared to peach mosaic or the
phony disease, the relatively long life
of sour cherry orchards affords time
for a high percentage of the trees to
become infected. Since diseased trees
produce some fruit, and in some cases
even larger sizes than on unaffected
trees, growers are reluctant to accept
any clean-up program. In the warmer
areas, symptoms are masked in af-
fected trees. Symptoms are likewise
masked in nursery stock grown in
these areas. Attempts are under way
to produce and supply nurserymen
with disease-free budwood.

For the location and relative dam-
age of other stone fruit virus dis-
eases, refer to the chart on pages 10
and 11.

The problem of control of virus
diseases can be divided into two
phases: (1) Prevention by exclusion
—if you don't have them, keep them
out—and (2) if already present, they
can be either eradicated or reduced to
a low incidence by a control program
through removal of diseased orchard
trees and planting only clean nursery
stock. If the rate of spread is so
rapid that these two methods are im-
practical, other means such as use of
tolerant or resistant varieties, grow-
ing orchards under isolation, control
of insect vectors, use of mild forms
of the virus to protect trees against
the severe forms, etc., have to be con-
sidered. The varying characteristics
of each disease make the problem a
singular consideration. It is essen-
tial before control procedures can be
planned to have such basic informa-
tion as rate of spread; relative
amount of damage caused to the host
plant; percentage of plants affected;
host range, particularly symptomless
hosts; insect vectors; incubation pe-
riod; and other pertinent facts. No
application of sprays or other treat-
ment with chemicals, fertilizers, or
other materials has resulted in the
cure of a virus diseased fruit tree
in the orchard.

Since virus diseases commonly
(Continued on page 24)

Harvest of more than food



● At still another difficult time in
world affairs, the American farmer
has come to the rescue with a record
harvest of corn—and near-record
harvests of wheat and other crops.

This great accomplishment assures
our nation of more than nourishment
for our own people alone. It also
makes it possible for us to supply
food—and thus new hope for the
future—to millions of people abroad.

Collecting this harvest for de-
livery to those who need it is the
job of our nation's railroads. And
this year they have performed this
task faster and more efficiently than
ever before.

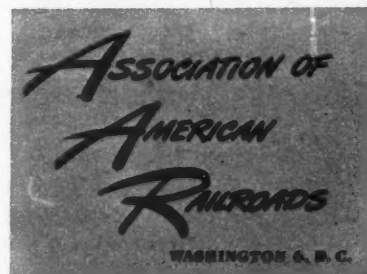
Credit for this achievement is
due to the cooperation of shippers
and receivers in making possible
faster turn-arounds of freight cars;
to increased railroad operating effi-
ciency; and to the new freight cars,
locomotives and rail facilities the

railroads have been adding as fast as
manufacturers could supply them.

At bottom, though, the fact that
America is able to help the world with
food—and with more than food—goes
back to the system of individual
enterprise and opportunity of which
both the American farmer and the
American railroads are vital parts.

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VIRUS PROBLEM

(Continued from page 23)

spread from one area to another and are commonly distributed in the orchard in diseased nursery stock and graft wood, special attention should be and is being placed on assisting nurserymen in obtaining virus-free stock. The regulatory efforts against the peach yellows group of diseases are well known. The State of Washington has a two-fold program assisting and encouraging growers to remove diseased trees in the orchard and assisting nurserymen to obtain clean budwood. In addition, they are attempting to obtain and assemble virus-free clones of the commercial horticultural varieties of stone fruits. These will be maintained in an isolation station, from which stock can be supplied to the trade. Oregon also is assisting nurserymen with a virus-free tree registry system, in which virus-free trees are located and labeled for use by nurserymen. Nurserymen are encouraged to use such sources for establishing their own mother blocks in preference to taking wood direct from orchards.

New York, Michigan, and several of the central states are instituting procedures to assist nurserymen in their respective states to obtain clean stock. At present there are few statutory provisions to prevent movement of nursery stock from some of the areas where diseases are known to be present. Prevention of carrying the diseases in such movement depends on the integrity and knowledge of the nurserymen and the assistance they can get from extension, research, and regulatory men. The procedures and specifications of nursery improvement programs in the various states differ and provide insufficient provisions to cover interstate shipments. There is need for a uniform program for certification of nursery source material free of virus and virus-like diseases.

Research and regulatory workers need the assistance of observations made by growers who know and live with their trees. Growers should report abnormal trees to their county extension men or to research men. Co-operative efforts among regulatory officials, growers, and research men are necessary to devise successful control procedures.

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PREMIUM-PRICED FULL-SIZED FRUIT
Per Acre



PLAN NOW how you can begin introducing Dwarf Fruit Trees into your orchards. Dwarfs give you many more trees per acre yielding larger crops of luscious full-sized fruit commanding highest market prices. And these early bearing trees—at 2 to 3 years of age—cut your operational costs way down. Prune, Spray, Pick from ground level.

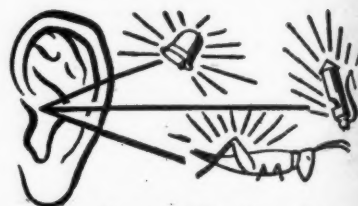
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Port Chester - New York
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GROWER

CALENDAR OF COMING MEETINGS AND EXHIBITS

Nov. 8-9—Minnesota Fruit Growers Association, Western Wisconsin Fruit Growers, joint meeting, Hotel Winona, Winona, Minn.—J. D. Winter, Sec'y, Minn. Fruit Growers Assn., Mound, Minn.; H. J. Rahmlow, Sec'y, Wis. State Hort. Society, Madison, Wis.

Nov. 12-13—New York and New England 10th Fruit Spray Conference, University of Vermont, Burlington.—C. Lyman Calahan, Acting Chairman, Burlington.

Nov. 16-17—Wisconsin State Horticultural Society annual meeting and Wisconsin Apple Institute, Hotel Retlaw, Fond du Lac.—H. J. Rahmlow, Sec'y, 424 University Farm Place, Madison.

Nov. 17-18—Oregon State Horticultural Society annual meeting, Corvallis.—C. O. Rawlings, Sec'y, Corvallis.

Nov. 17-19—Iowa Fruit Growers Association and Iowa State Horticultural Society annual meeting and fruit show, Memorial Union Bldg., Iowa State College, Ames.—W. H. Collins, Sec'y, State House, Des Moines.

Dec. 1-2—Ohio Pesticide Institute annual meeting, Fort Hayes Hotel, Columbus.—H. C. Young, Sec'y, Ohio Experiment Station, Wooster.

Dec. 1-3—Connecticut Pomological Society 58th annual meeting, West Hartford Armory, Hartford.—H. C. C. Miles, Sec'y, Milford.

Dec. 2-3—Kansas State Horticultural Society 82nd annual meeting, Kansas City, Kans.—Geo. W. Kinkead, Sec'y, Capitol Bldg., Topeka.

Dec. 6-8—American Pomological Society annual convention, in conjunction with Washington State Horticultural Association 44th annual meeting, Yakima, Wash.—W. D. Armstrong, Sec'y, APS, Princeton, Ky.; John C. Snyder, Sec'y, Wash. State Hort. Assn., Pullman.

Dec. 6-8—Fruit Growers' Short Course, Ohio Experiment Station, Wooster.—F. S. Howlett, Ohio Experiment Station, Wooster.

Dec. 6-8—New Jersey State Horticultural Society annual meeting, Claridge Hotel, Atlantic City.—Arthur J. Farley, Sec'y, New Brunswick.

Dec. 7-9—Michigan State Horticultural Society annual meeting, Civic Auditorium, Grand Rapids.—H. D. Hootman, Sec'y, East Lansing.

Dec. 9-10—Oklahoma Pecan Growers Association annual meeting and show, Okmulgee.—F. LeCrone, Sec'y, Stillwater.

Dec. 9-10—Nut Growers Society of Oregon and Washington annual meeting, Vancouver, Wash.—C. O. Rawlings, Sec'y, Corvallis, Ore.

Dec. 13-15—Illinois State Horticultural Society annual meeting, Abraham Lincoln Hotel, Springfield.—Curt E. Eckert, Sec'y, Belleville.

Dec. 15-17—Virginia State Horticultural Society 53rd annual meeting, Hotel Roanoke, Roanoke.—John F. Watson, Sec'y, Staunton.

(Continued on page 26)

NOVEMBER, 1948

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Glider Model FLAME GUN
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CALENDAR OF COMING MEETINGS AND EXHIBITS

(Continued from page 25)

Dec. 16-17—Peninsula Horticultural Society annual meeting, Dover, Del.—T. F. Manns, Sec'y, Newark.

Jan. 4-6—Massachusetts Fruit Growers Association, Inc., 55th annual meeting, The Auditorium, Worcester.—Wm. R. Cole, Sec'y, Amherst.

Jan. 5-6—Maryland State Horticultural Society 51st annual meeting, Hotel Alexander, Hagerstown.—A. F. Vierheller, Sec'y, College Park.

Jan. 5-7—Northeastern Weed Control Conference, Hotel New Yorker, New York City.—R. D. Sweet, Sec'y, Cornell University, Ithaca, N. Y.

Jan. 11-13—New Hampshire State Horticultural Society annual meeting, in cooperation with Vegetable Growers' Association, Hotel Carpenter, Manchester.—Daniel R. Batchelder, Sec'y, Wilton.

Jan. 12-14—New York State Horticultural Society 94th annual meeting, Edgerton Park, Rochester.—Daniel M. Dalrymple, Sec'y, Lockport.

Jan. 20-22—Tennessee State Horticultural Society 43rd annual meeting, Andrew Jackson Hotel, Nashville.—E. L. Brinkley, Sec'y, Signal Mountain.

Jan. 26-28—New York State Horticultural Society eastern meeting, Kingston.—Daniel M. Dalrymple, Sec'y, Lockport.

Feb. 9-11—Ohio State Horticultural Society annual meeting, Commodore Perry Hotel, Toledo.—C. W. Ellenwood, Sec'y, Wooster.

Feb. 17-19—Pennsylvania State Horticultural Association annual meeting, State Education Bldg., Harrisburg.—J. U. Ruef, Sec'y, State College.

ORCHARDS VERSUS DEER

(Continued from page 18)

Trees over five years of age are judged on their condition of growth and bearing, as to whether they will be considered as five-year-old trees or treated as trees in commercial production.

Trees of bearing age. Trees of bearing age, and which are in production, are given special consideration based on the following points:

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- (2) Actual loss of crop.
- (3) Loss of leaf surface and fruit spurs that may affect the future crop.

Examples of Working the Score and Valuation:

(a) Assume a one-year tree is totally lost, the computation is as follows:

Tree cost.....	\$0.90
Planting cost.....	.15
Operational cost.....	.35
Production loss.....	.75

Total.....\$2.15

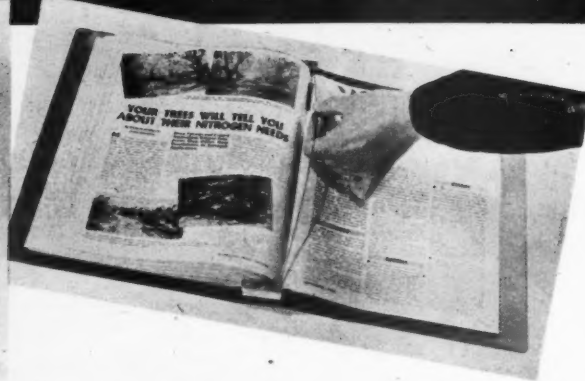
(b) Assume a three-year tree is a total loss:

Tree cost.....	\$0.90
Planting cost.....	.15
Operational cost.....	1.05
Production loss.....	2.85

Total.....\$4.95

(c) Assume a three-year tree which is scored 50 percent loss: Use above figures in (b) and multiply by 50 percent. Total, \$2.48.

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COMING EXHIBITS

(page 25)

Horticultural Society, Del.—T. F.

uit Growers Association meeting, The Wm. R. Cole,

Horticultural Society, Hotel Alexander, F. Vierheller,

Control Conference, New York, Cornell University,

State Horticultural Society, in co-operation with the Growers' Association, Manchester, N. H., Wilton.

Horticultural Society, Edgerton, M. Dalrymple,

Horticultural Society, Andrew, E. L. Brinkman,

Horticultural Society, Kingston, Dan Lockport.

Horticultural Society, Perry Hotel, Sec'y, Wooster,

Horticultural Society, State University, J. U.

US DEER

(page 18)

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cent. Total,

HELPING THE RETAILER

(Continued from page 12)

signed to get fruit to the consumer in the best possible shape.

Calling the bushel basket the most inefficient container ever devised for peaches, Summers has one Michigan grower already shipping in the Colorado peach lug; and he believes the solution of the Michigan peach industry depends on the adoption of a container which will carry peaches to market without bruising.

A major part of Inland's program for delivering high quality fruit is a regular and frequent delivery system. Retailers are serviced every other day with fresh fruits from refrigerator trucks by 40 driver-salesmen. The "Inland Merchandiser" is a weekly bulletin distributed to salesmen with seasonal hints for merchandising fruits.

To assist the retailer, Inland maintains a staff of dealer-servicemen who help in the all important questions of how to merchandise. Questions such as how to make and maintain a fruit display, how to store fruits overnight, and how much space to devote to fruit displays are a few of the problems constantly discussed by Inland dealer-servicemen.

The activity of wholesalers, such as Inland Trading Company, is supplemented on a national basis by their two great trade associations—United Fresh Fruit and Vegetable Association and the National League of Fresh Fruit and Vegetable Wholesalers.

The National League sponsors classes for retailers which teach proper handling and merchandising of fresh fruits and vegetables. These courses for retailers are provided for through funds made available by the federal government which are matched by the states. First class was held in Philadelphia with other classes scheduled to start in New York, Pittsburgh, Cleveland, Cincinnati, and Boston.

The courses, for which wholesalers and suppliers carry on an active program of registering retail grocery personnel, teach that attractive, well-managed fresh fruit and vegetable departments provide larger profits per square foot of retail floor space than other departments and also can have a larger gross margin of profit. The classroom program is also designed to help the retailer eliminate cash losses from spoilage and loss of customers because of poor merchandising.

The United Fresh Fruit and Vegetable Association likewise has a program for retailer education. Their United Merchandising Institute, which works in co-operation with the

(Continued on page 29)



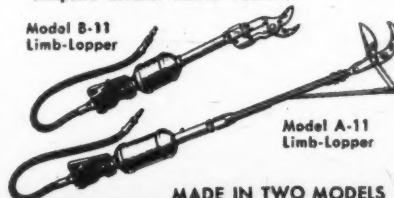
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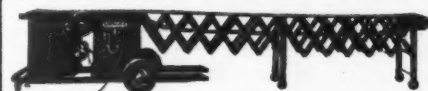
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I mean the tolerance of a Penn-

sylvania farmer for the habits of his city cousin; the tolerance of folks who vote one way towards those who vote another; the tolerance of those who prefer spring water towards those who enjoy a moderate beverage like beer.

From where I sit, it's that great American trait of tolerance—respect for individual tastes and liberties—that makes this country strong. Let's never lose it!

Joe Marsh

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FREE CATALOG—SAVE ON COTTONS—THRILLING values for family and home—shirts, underwear, dresses, prints, towels, sheets, children's wear. Money-back guarantee. **SOUTH CAROLINA MILLS, Dept. 38, Spartanburg, South Carolina.**

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HUNDRED ACRE EQUIPPED BEARING APPLE OR- chard for less than cost of buildings. With finance. Write Owner—**HENLEY ORCHARD, R.R. 1, Rushmore, Ohio.**

120 ACRE FARM. 50 ACRES PEARS, 25 PEACHES, 20 Apples. Balance good farming land. Making high rate of income over long term of years. Near town. Good house and adequate buildings. \$150 per acre. **ELMER WHITFORD, Farina, Illinois.**

CENTRAL OHIO FRUIT FARM. 397 ACRES, CHERRIES, peaches, apples. Exc. variety. Farm has been well taken care of and is in high state of productivity with plenty of young trees coming on. Never been known to have a crop failure. Main house—8 rooms, 3 baths, completely modern. Free natural gas for heating and cooking. 3 modern tenant houses. Large bank barn. Plenty of other buildings for crating and packing large fruit crop. Buildings newly painted and fences in good repair. Out of state owner wishes to sell immediately. Priced with and without equipment for immediate sale. **R. P. WOOD, 46 E. Northwood Avenue, Columbus, Ohio. WA-5618 or M. G. WILLIAMS—JE-7928.**

FOR SALE—254 ACRE FARM, INCLUDING NICE young apple and peach orchard of 42 acres, 22 bearing, on Highway 97 in Southwest Missouri. Owner has other interests. **WORMINGTON, 6 West Ninth Street, Kansas City, Missouri.**

PATENTS

NATIONAL TRADE MARK COMPANY, MUNKY Building, Washington, D. C.

PECANS

FIFTY YEARS IN THE PECAN CULTURE. LET ME have your order for Fancy Texas Pecans. **W. J. MILLER, CAN, Bend, Texas.**

PET STOCK

67 VARIETIES, PIGEONS, PEAFAWLS, PHEASANTS, Monkeys, Rabbits, Pigs, Mice, Bees, Hamsters. Catalogue 10c. Free List. **HOUCK FARM, Tiffin 2, Ohio.**

POULTRY

BEAUTIFUL BARRED ROCK BANTAMS, GOOD profitable side-line. **FLOBY, Route 1 Box 682, Ft. Worth, Texas.**

RAISE TURKEYS THE NEW WAY. WRITE FOR free information explaining how to make up to \$3,000.00 in your own backyard. Address **NATIONAL TURKEY INSTITUTE, Dept. 233, Columbus, Kansas.**

RABBITS

RAISE RABBITS COMMERCIALLY. BIG INCOME FOR full time producers, or handsomely supplement your present income in spare time. We teach you. Send 25c for bulletin, prices, hatch plans, etc. Get into this amazing industry now. **RABBIT FEDERATION, 200 Burrell Building, San Jose, California.**

WANTED TO BUY

WANTED TO BUY DWARF FRUIT TREES. GEORGE H. EBERLE, 124 E. Duryea, Peoria Heights 4, Illinois.

CORN CENTER DOIN'S



Those farm kids all want that B.F. Goodrich tread their dads vote for 2 to 1.

When farmers were asked what type of tractor tires they prefer, the vote was 2 to 1 for the open tread—the B. F. Goodrich kind of tread. This was a nation-wide poll, conducted in every state by an independent research company. This preference is easy to understand when you watch a B. F. Goodrich tractor tire operate. The tire is

flexible because the cleats aren't joined together. There are no closed pockets at the center of the tread . . . so dirt, mud and trash spring free as the tire rolls. With a clean tread you're bound to get more traction. You get work done faster, easier. Save on fuel. Take a tip from farmers who have used them. Get open tread B. F. Goodrich tires.

An advertisement of The B. F. Goodrich Company, Akron, Ohio

NEW COMPATIBILITY CHART

Reprinted in three colors on heavy stock suitable for hanging on the wall. Every fruit grower needs this chart as an accurate guide in mixing his insecticides and fungicides.

While the present supply lasts, we will furnish these charts at 10c each. Fill out the coupon below.

AMERICAN FRUIT GROWER
1370 Ontario Street
Cleveland 13, Ohio

Enclosed is 10c. Send Compatibility Chart to:

Name

Address

City State

(Offer Good only in U.S.A.)

AMERICAN FRUIT GROWER

FRUIT TREE UNDERSTOCKS

For Grafting, Budding and Inarching
APPLES
PEARS (Bartlett)
CHERRIES (Mahaleb)
PLUMS (Native)
 Write for complete price list
WILLIS NURSERY CO., Dept. A Ottawa, Kansas

Hawk Chinese Chestnut Trees

BLIGHT RESISTANT

Parent trees bear annually, early, and abundantly. Extra quality tasty nuts.

SPECIAL OFFER: Four—3' to 4' TREES \$10.00
 Write for other sizes and price.

HAWK & SON NURSERY
 Beach City, Ohio R.D. 2

BLUEBERRY PLANTS

WHOLESALE AND RETAIL

One, two, and three years. Certified. Early, midseason and late varieties, bargain prices.

GALLETTA BROS. - BLUEBERRY FARMS
 HAMMONTON, NEW JERSEY

ATTENTION CANADIANS!

Montmorency Cherry Trees, 2 yr.
 9/16"—11/16" caliper No. 1 Grade
 —in quantity lots \$1.25 each.

Brookdale-Kingsway Nurseries
 Bowmanville, Ontario, Canada

FRUIT TREES

We specialize in growing High Quality Nursery Stock for Fruit Growers. A complete line of Fruit and Nut Trees, Berry Plants, Roses, Evergreens and Flowering Shrubs. Write for colored Catalogue with Money Saving Prices.

EAST'S NURSERY
 Box 450 AMITY, ARKANSAS

Evergreen Lining-Out Stock TRANSPLANTS and SEEDLINGS

Pine, Spruce, Fir, Canadian Hemlock. Arboreal, in variety. For growing Christmas trees. Windbreaks. Hedges. Forestry. Ornamentals. Prices low as 3c each on quantity orders. Write for price list. **SUNCREST EVERGREEN NURSERIES, Dept. AFG. Box 643, Johnstown, Penn.**

The R. L. STONER PEACH

Queen of White Peaches

Plant Patent 798
 Discovered on Stoner Fruit Farm in 1929. Hardy. 13 crops in 14 years. Firm, large, freestone, excellent quality. Write.
HALDERMAN'S NURSERY, Tipp City, Ohio

CERTIFIED CULTIVATED BLUEBERRY PLANTS

Wholesale & Retail
15 VARIETIES
 Order NOW for Fall or Spring Planting
MONROE FARMS
 Box 464, Brown Mills, N. J.
 Member of the Blueberry Cooperative Association

Fresh Choice Shelled Pecans

FROM NEW CROP STOCK
 Packed 7/8 gallon cans

Select whole halves \$3.65 can. Select large fancy broken halves \$3.50 can. Lots of ten cans or more 50% cash discount. We pay postage or express. Write for prices on unshelled pecans.

THE V. R. THAGARD COMPANY
 GREENVILLE, ALABAMA

PEACH APPLE TREES LOW AS 20¢

Pears, plums, cherries, nuts, berries, etc. Grapes 10¢. Shrubs, evergreens, shade trees 2¢ up. High grade quality stock cannot be sold lower. Free 40 page color catalog.
TENN. NURSERY CO., Box 4, CLEVELAND, TENN.

HUNT'S GRAFTING WAXES, RODENT REPELLENT, ETC.

MICHIGAN BEE & FARM SUPPLY
 BOX 7, LANSING 1, MICH.

NEW BULLETINS

Many publications of the state agricultural colleges and experiment stations contain information of interest to fruit growers from other states. Frequently these bulletins may be obtained by writing the Director of Publications of the college or experiment station concerned. USDA bulletins may be obtained by writing the Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C. (They do not accept stamps as payment.)

• **Washington Apple Production Costs for the 1945-46 and 1946-47 seasons** (Bul. 493, 1947) State Coll. of Wash., Pullman, evaluates the results of a questionnaire given to growers in the Yakima and Wenatchee districts.

• **Grape Growing in Florida** (Bul. 436, 1947) Fla. Agr. Exp. Station, Gainesville, tells of the difficulties besetting Florida grape growing and how to overcome them.

• **Raspberry Growing in Michigan** (Ext. Bul. 28) Mich. State Coll., East Lansing, gives necessary factors for a successful raspberry crop, from selection of site to final marketing.

• **Control of Field Rodents in California** (Circ. 138, 1947) Coll. of Agr., U. of Cal., Berkeley, describes the habits of various rodents and the different control methods.

HELPING THE RETAILER

(Continued from page 27)

U. S. Department of Agriculture, has already trained more than 6100 grocers in 36 cities since their program of free classes started a year ago. Response from retailers to the UMI's program has been quick. One grocer said that his fruit and vegetable sales were increased by 25 to 50 percent. Others were influenced into enlarging their produce departments, and one estimated he had cut his spoilage losses by \$100 in a week.

It is good news for fruit growers when retailers increase their sales of fruits and add to their lists of satisfied customers. More customers for the retailer mean more customers for the fruit grower and is a sure way to increase fruit consumption.

NEW HARDY FRUITS

New Hardy tried out Varieties of Peach and Apple Trees at wholesale prices. Catalogue FREE
MARKHAM FRUIT BREEDER
 Dept. 8, FLORA, ILL.

FRUIT TREES

Prices. Peach, Apple, Pear, Plum and Prune, Cherry. Write for Prices. Drop a card for Free copy of our catalog.
CHAMPION NURSERIES
 150 MAIN STREET • PERRY, OHIO

TUALATIN VALLEY NURSERIES

CHOICE FRUIT & NUT TREES

FROM THIS FAMOUS NURSERY—SINCE 1915
NURSERY STOCK
 Quick Bearing. True Name
700 VARIETIES

Apples, Peaches, Pears, Plums, Prunes, Cherries, Apricots, Figs, Filberts, Walnuts, Almonds, Cane and Vining Berries, Blue Berries, Strawberries.

ALSO—SHRUBS, FLOWERING SHADE TREES
 VINES, ROSES, BULBS, ORNAMENTALS

SEND FOR

BIG FREE NURSERY CATALOG

TUALATIN VALLEY NURSERIES
 HERWOOD, OREGON P. O. BOX 319

FRUIT TREES, STRAWBERRY, RASPBERRY, and BLUEBERRY PLANTS

FALL PLANTING TIME IS HERE!

Plan to plant Bountiful Ridge Fruit, Nut, Shade trees; Berry Plants, Grapes, Flowering shrubs, Evergreens—While soil is right, stock complete. Gain fruiting time—Have better results, Satisfaction. Over 80 years successful

dealing direct with planters assures top quality stock. OUR PRICE REDUCTIONS ON MOST TREE FRUITS AND BERRIES makes Bountiful Ridge the chosen place to buy your planting needs. Write today for 60-page complete catalog.

BOUNTIFUL RIDGE NURSERIES

BOX F-118

PRINCESS ANNE, MD.

FARMERS

WHOLESALE NURSERY

PAUL PATTERSON, Owner

A dependable source for true-to-name fruit trees. We specialize in commercial accounts, and exercise every care in keeping our varieties straight.

Write for prices.

P.O. Box 65

Smithville, Tennessee

You Get What You Buy

DEPENDABLE

Fruit and Nut Trees

Small Fruits

Ornamentals and

General Nursery Stock

Write for Free Color Catalogue

Cumberland Valley Nurseries, Inc.

Box 101

McMinnville, Tenn.

HYBRID RASPBERRY "POTOMAC" (RUBUS NEGLECTUS)

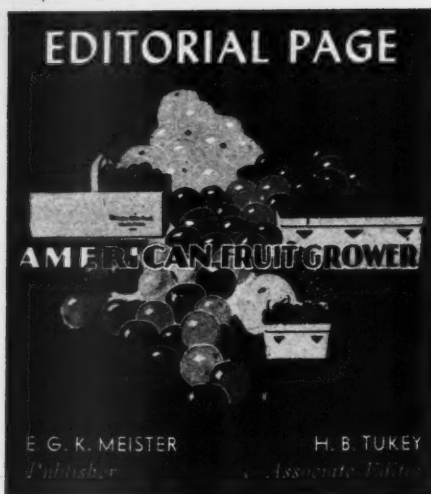
Red x Black cross originated by our USDA which thrives on all soils. Very productive, large, easy to pick, deep purple fruit of finest dessert or canning quality. Vigorous, upright canes, thornless, disease resistant and very winter hardy.

Prices of "Potomac" for April planting
 \$3.00 per 25 — \$6.00 per 50 prepaid — \$85 per M

W. A. BENTS NURSERIES Fruit Specialists
 CRESCO, IOWA

500 Varieties GRAPES

Specializing in French Hybrids
SCHROEDER VINEYARD, Hutchinson, Kansas



"Flying Squadrons"

THE IDEA of "flying squadrons" of young growers to visit terminal markets contains a good deal of merit. It is a system used by Appalachian Apple Institute to promote apples by sending growers and local distributors to talk directly with the trade rather than relying on occasional letter and telephone messages. Not only is it excellent promotion, but the grower also learns, at first hand, how better to meet the demands of his customers.

One flaw in apple marketing today is that growers have lost touch with the consumer and with the people who make a business of handling and selling fruits. At the turn of the century, producers were able to sell directly to the housewife; now the complexities of the modern distributing system have made that impossible.

To go one step farther and sponsor grower-retailer contacts would increase the value of such contacts. Where it is impossible to contact individual retailers because of their large numbers, it is likely that meetings could be arranged with retailer associations. An understanding of the retailer's problems, as well as the wholesaler's, would help to insure that the consumer receives fruit in the condition the grower meant it to be when he grew it—just as back in Grandfather's day.

A More Beautiful America

BEAUTY of the countryside should logically originate from the horticultural talent of fruit growers. They are the largest, most prosperous and most influential horticultural group in the United States. To lead the way with attractive plantings around farm homes, with landscaped drives and vistas, and with care and maintenance of ornamentals equal to that given the orchard, is the natural bent of the

fruit grower. Beauty in home surroundings returns contentment and satisfaction, an added joy in the noblest and most discriminating of occupations. Because tasteful gardens and grounds increase the owner's happiness is reason enough for planting them, but, in addition, more beautiful country homes contribute to the cause of better living and moral and spiritual improvement.

The home of an orchardist should, therefore, reflect the horticultural instincts of its owner. But there is more than charm in identifying an orchard with well-selected ornamental plants. Its beauty makes an impression which the highway traveler likes to remember. There is advertising value in a well-planted orchard. Let us lead with the best planted homesteads in rural America!

November

NOVEMBER is one of those months which is between the seasons. There is still a friendly warmth; yet there is a chilliness when the air stirs that hints of snowflakes and curling wood smoke. The fruit grower, too, is "in between" during November, for while he works hard finishing the harvest, he is thinking and planning for the future. One season's work is coming to fruition, yet already plans are being made that will breathe life into next year's days.

Fruit Production at a Glance

	1937-46	1947	Oct. 1, Est. 1948
Apples bushels	115,058,000	113,041,000	96,319,000
Peaches bushels	66,725,000	82,603,000	67,467,000
Pears bushels	30,222,000	35,312,000	26,358,000
Grapes bushels	2,701,000	3,072,000	2,956,200
Plums and Prunes tons (fresh)	723,140	675,000	604,600
Cherries tons	170,000	173,000	201,280

CITRUS

	1936-45	1946-47	1947-48
Oranges boxes	83,488,000	113,980,000	111,680,000
Grapefruit boxes	44,593,000	59,640,000	62,860,000



The Virus Problem

THE ARTICLE by Dr. L. C. Cochran beginning on page 9 of this issue of AMERICAN FRUIT GROWER merits careful reading and re-reading by every fruit grower. For in the virus problem that confronts plants and animals alike is one of the most insidious and difficult problems of our time. Infantile paralysis; tobacco mosaic, little peach, cherry yellows, raspberry mosaic, and the common cold are all virus diseases.

To be sure, we have other troubles. We have insects like the codling moth, bacterial diseases like pear blight, and fungous diseases like brown rot and apple scab. But we can at least see these pests. We know how they operate; we know their life histories; and we feel confident that we will finally control them once we have found the weak spot in their armor, have equipped ourselves with the proper materials, and have grappled with them.

But the viruses are different. As stated by Dr. Kunkle of the Rockefeller Research Institute at Princeton, N.J., one of the pioneers and life-time workers with viruses, the viruses are about as cleverly devised to resist attack as anything one can think of.

First of all, they are a mysterious sort of thing. Some scientists say that they are living organisms—and certainly they often behave that way. Other scientists say that they are non-living—just peculiar organic chemical compounds. Still others say that they bridge the gap between the living and the non-living.

Second, they are not content to band together in a recognizable group and attack honorably from the outside like an alien army, like insects, like bacteria, and like fungi. No, indeed! They represent the new in warfare. They represent the tactics of infiltration and demoralization so familiar today. They filter inside the "host" animal or plant—into the individual cells themselves. They become a part of the individual. And there they live and thrive and carry on their nefarious work side by side with healthy processes.

Happily, there are in the world men who gain their chief satisfaction out of tracking down things of this kind and in devoting their lives unselfishly to the good of mankind. And happily, too, society now recognizes and fully appreciates these men and provides them with proper facilities to work out the job.

And so AMERICAN FRUIT GROWER hopes that you will read the virus article carefully and critically and give your support to a major problem and to the men who are tackling it.

AMERICAN FRUIT GROWER

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WILLYS-OVERLAND'S 4-WHEEL-DRIVE FARM VEHICLES

Work in Any Weather . . . Any Place . . . the Year 'Round



THE 4-WHEEL-DRIVE 'JEEP' DOUBLES AS TRACTOR AND ALL-PURPOSE VEHICLE

You get more than a tractor when you get a Universal 'Jeep'—you get a general-utility vehicle for towing and transportation over the toughest roads, in the worst weather. With 4-wheel-drive, six forward speeds and an operating range from 2½ to 60 mph, the 'Jeep' serves you every season—handling pull-type or hydraulic implements, hauling in the field, hustling a trailer to town in a hurry. No other vehicle spreads its cost over so many jobs. Ask your Willys-Overland dealer for a free demonstration on your farm.

4-WHEEL-DRIVE **'Jeep'**
UNIVERSAL

THE 4-WHEEL-DRIVE 'JEEP' TRUCK ANSWERS A LONG-FELT FARM NEED

Much of your hauling must be done off the road, over ground that strains ordinary trucks. Many a job can't wait because of weather or bad road conditions. The one truck that exactly fits your needs is Willys-Overland's 4-wheel-drive 'Jeep' Truck. Its all-wheel traction means all-year service, on the road or off. It is the right size—5300 lbs. GVW. Sturdy construction and its thrifty 'Jeep' Engine give low operating costs. See it at Willys-Overland dealers in pickup and platform-stake styles.

4-WHEEL-DRIVE
'Jeep' Trucks



WILLYS-OVERLAND MOTORS • TOLEDO • MAKERS OF AMERICA'S MOST USEFUL VEHICLES

NOVEMBER, 1948

Sheds the rain...

**...KEEPS
PESTICIDES
ON THE TREES**



★ It's the new fungicidal adhesive

Good-rite p.e.p.s.

in the new, easy-to-use "brick"



**DISTRIBUTORS...
IT'S A HIT!**

Good-rite p.e.p.s. is brand new—but proved in four seasons' tests. It's taking hold in a big way! Write today for full information on adding this profit-maker to your line.

**DEALERS...
IT'S HOT!**

Good-rite p.e.p.s. is setting success records—is becoming popular with more and more fruit growers. Build up your profit-line with it. Write today for complete information.

NOW you can protect your orchards better than ever before—when you add Good-rite p.e.p.s. to your sprays. This new "fungicidal" sticker keeps sprays from washing off trees, even in heavy rains.

It gives you better and longer-lasting coverage. It helps you save work and money, too. In many applications the use of Good-rite p.e.p.s. makes it possible to use reduced dosages.

This new agricultural chemical is basically polyethylene polysulfide. It is made by a brand new process which permits the preparation of a non-injurious and remarkably stable product.

Good-rite p.e.p.s. is another example of B. F. Goodrich Chemical Company develop-

ments—a product that helps give you better fruit yields at lower cost, with less work. Write today for complete information.

MORE FRUIT LESS WORK

Good-rite p.e.p.s. is *highly adhesive*—resists heavy rains that wash off ordinary sprays. It is *widely compatible* with practically all fungicides and insecticides—increases their effectiveness. *Non-injurious* to fruit and leaves. *Resistant* to freezing.

EASY TO USE. Each 4-lb. package of p.e.p.s. contains two heavy-foil-wrapped cartridges. Simply unwrap, crumble, dump on screen and wash in with water. Each cartridge makes 400 gallons.